

## **Alienation To-do:**

**Using critical design to explore issues of alienation and  
involution for contemporary digital laborers in China.**

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## **Abstract**

This thesis project explores the overwork and involution of Chinese digital laborers by quantifying these laborers' level of alienation and take actions to reduce it using critical design methods on a mobile app. Involution in China stands for the unnecessary competition, which does not lead to productivity and improved innovation in the workplace. Nowadays, young employees working in big cities in China are suffering from the issue of overwork and involution. They not only withstand expended working time and heavy workload but also experience meaninglessness in work, as well as intense and useless competition from other employees. As suggested by analyzing some working characteristics of Chinese digital laborers, the situation may be manifestation of negative effects of capitalism and labor exploitation, and the alienation of employees would be a core concept in this issue and contributes to finding possible solutions.

The outcome of the thesis project is a critical app while adopting critical design as the main design methodology: Alienation To-do. The app is an office and self-management app that can enable users to manage time and tasks at work and quantify the level of alienation of users by analyzing users' data uploaded. Additionally, a report reminds users of their level of alienation and gives advice on how to ease the situation. Moreover, users will be encouraged to take suitable actions and record what they do. Thus, their levels of alienation will be influenced. This thesis project aims to clarify what an employee could do to get rid of alienation invite users to reflect on the real world.

*Keywords:* critical design, speculative design, mobile app, alienation, involution, qualitative analysis, quantitative analysis

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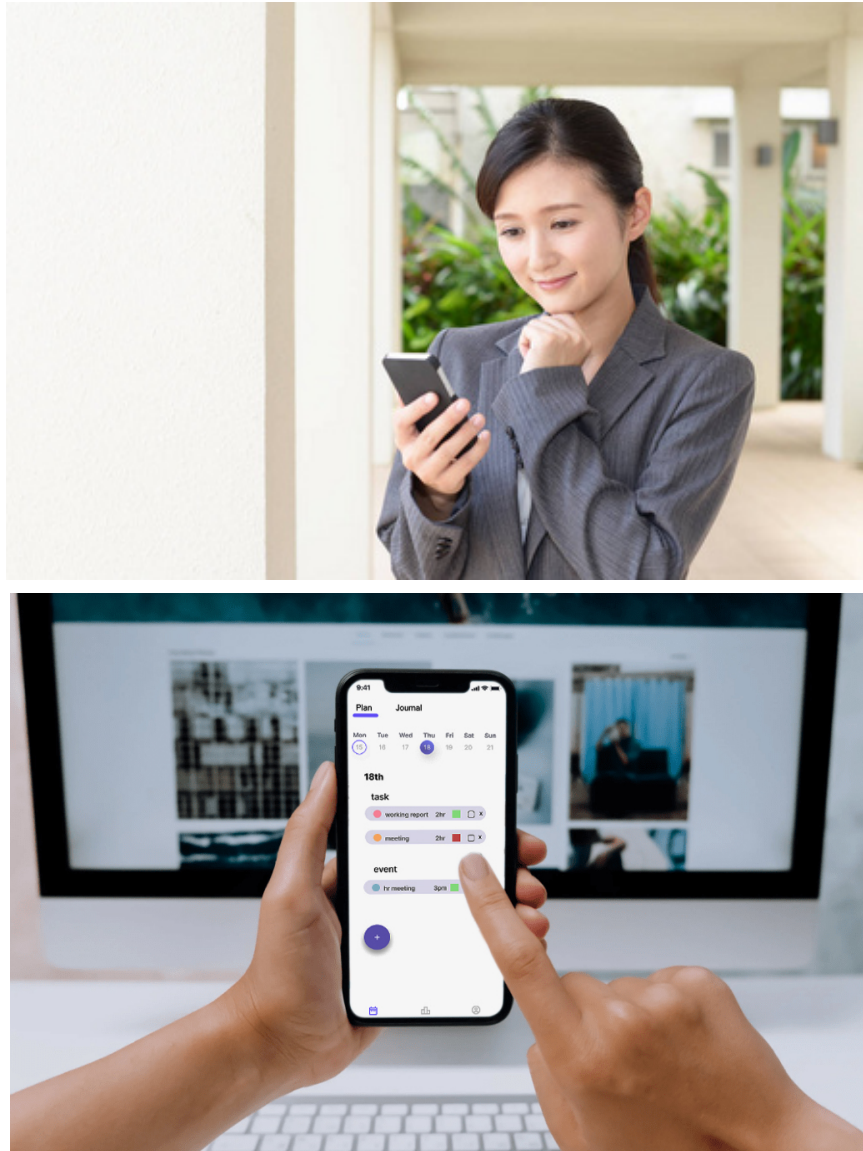
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## Chapter 1: Introduction

### 2.3 Background introduction and motivation



*Figure 1: the scenario of using the app.*

Overwork refers to working too hard and too long and severely damages physical and mental health of employees. In China, especially in big cities, a high percentage of employees are suffering from overwork. From one perspective, manual worker are suffering from overwork. Deliverymen are controlled by the algorithms of the take-out platform to deliver more food in less time, which is a typical example of labor exploitation and overwork (Yue Yin, 2020). From another perspective, white-collar workers experience too much work. Seventy percent of China's urban white-collar

workers suffered from overwork (Xinhua News Agency, 2007). Besides, “996”, which stands for working from 9am to 9pm, six days a week, arouse wide discussion in China in 2019 (Xinhuanet, 2019). This phenomenon is common within China’s urban white-collar workers, especially “digital workers”, suggesting that employees work for technology and internet companies in big cities of China. Some programmers have set up a project on Github, a world-class code repository, to express their frustration with 996 ([www.996.icu/](http://www.996.icu/)). Overwork happens when employers extend employees’ working time and monitor them to finish more work for gaining more commercial benefits. It can be considered exploitation of labor.

“Involution” is another topic discussed intensely among digital laborers. Involution on the internet stands for unnecessary competition in the workplace and results in internal conflicts and friction among employees (“Involution”, 2019). Involution has attracted attention by more people with a news that a student in Tsinghua University ran his programming system on a laptop while riding a bike. He is considered “king of involution in Tsinghua (“Involution”, 2019)”. Involution is related to various industries and different periods of life, especially the competition in NCEE (National College Entrance Examination), as well as the “996” working mode, which contains highly expended working time and workload. The pheromone of involution may be induced by the negative effects of capitalism, such as the labor exploitation and intensive market competition, highly simplex target, value evaluation system, and the way of competition (Wang and Ge, 2020).

The theory of alienation is discussed in the thesis to reveal the basic reasons for the issue of overwork and involution. The definition of alienation of Marx is the most widely known by Chinese people, especially for the part of the separation of workers from what they create. In this process, they are considered tools, not humans. Alienation of laborers can lead to labor exploitation and contribute to the involution in today’s China both directly and indirectly. Meanwhile, it becomes one of the key

points of solving the issue. To solve or ease the issue of overwork and involution of Chinese digital laborers is to tackle their alienation.

How to deal with the overwork and the involution? The issue of alienation is a wicked problem and a systematic issue which is caused by different stakeholders:

government, companies, and employee itself, and it is hard to solve unless people change their minds. Therefore, this thesis uses the critical design and speculative design methodologies, and a critical mobile app is created to make users aware of the issue instead of solving it. This prototype isn't a traditional commercial app and would not be grounded on App stores and be used by people in the real world.

However, it is used as a prop to lead users to learn about the issue of involution and labor alienation in the China society, look back in their daily life and rethink about their working conditions.

The final version of the thesis project is a critical mobile app, which uses the form of a health app to record and quantify users' levels of alienation. The target of the app is to raise the awareness of employees of the issue of alienation at work and provide them with some advice on getting away with it. Firstly, there is a planner system encouraging users to add tasks and events, assisting in collecting data about working features. There are pages of the report of alienation showing users' alienation score calculated by working data and information user filled, as well as the abstract of five aspects of alienation and diagrams of data in the weekly view and monthly view. The score can be shocking to users, and this dramatic effect can make them rethink of their working conditions, The report also provides suggested actions against alienation, providing information to users about how to ease the issue. There are also instructions and reference articles about the concept of alienation and introduction of involution, getting users more familiar with the issue. Besides, users are encouraged to record what they do following these actions on the "Journal" page and share information in a community. These actions of users will influence the score of alienation, making them motivated and be willing to make real changes in the real life.

## **2.4 Research questions**

Since the overwork and involution of Chinese digital laborers have various negative effects on employees and society, the following research questions will be explained in this thesis to study and provide possible solutions to the issue of overwork and involution.

Key questions:

How can critical design be used in the form of mobile health app to engage “digital laborers” in China with the concepts of alienation and involution?

Secondary question:

-How is the contemporary issue of overwork in China connected to the theories of involution and alienation.

-How can UX design principles be used to enhance Critical Design.

## **Chapter 2: Literature and contexts review**

The introduction of theories and issue explained the complexity of causes of issue – the wicked problem, and provide theoretical bases for important contents of the critical app.

This section firstly introduces the theory of exploitation – one of the most important causes of the issue of overwork, based on literatures. Then there is the introduction of the involution, including definition and several types of it in China. After that the theory of alienation is explained, which is considered to be the internal performance of the issue of involution, and manifestation and solution are mentioned as the gist of how to quantify the level of alienation and how to give advice about easing it, which is the core function that leads to the awareness of users about the issue.

Additionally, some speculative and critical design methods are analyzed as a reference of designing early version of the prototypes. And several health tracking apps and self-management app are also analyzed as the inspiration of the structure and main functions of the critical app I create.

## **2.1 The introduction of Exploitation**

### **2.1.1 Marx's theory of exploitation.**

The basic reason for overwork and exploitation may be associated with the nature of capitalism and labor exploitation. In China, most people are familiar with the theory of exploitation of Karl Marx since Marxism is one of the most widely known theories of politics, economy, and philosophy from the last century. It is also the most influential theory of exploitation of all time by far. In Marx's theory of labor, workers in a capitalist society are exploited as they are forced to sell their labor to capitalists for less than the full value of the goods they produce (Dowding, 2011, pp.232-235). First, Marx believes that workers' labor under capitalism was not truly voluntary since they lack ownership of the means of production and must sell their labor to the capitalists or they cannot make a living. Second, capitalists take advantage of workers so that workers are not considered to work entirely for their own benefit (Zwolinski et.al., 2017).

The concept of surplus-value could be introduced to better explain the definition of theory of exploitation of Karl Marx. Marx argued that workers' labor power is treated as a commodity in a capitalist society and is based on his analysis of market prices inherited from earlier classical economists such as Adam Smith and David Ricardo. Additionally, he agreed that the price of labor power is determined by its cost of production, which is regarded as the labor theory of value. Therefore, Marx believed that workers under capitalism can support their basic levels of living by getting paid from work (Zwolinski et.al., 2017).

However, Marx argued that only labor can produce value beyond that, which is needed for its own reproduction and different from any other commodities. Therefore, the value of the commodities that workers can produce during a day is much bigger than the value of commodities that sustain the worker to live for the same time (Roemer, 1982, pp.163-192). Surplus value, according to Karl Marx, is the difference between the value a worker produces in a certain period and the value of the consumption goods supporting the living of the worker. The part of work that workers make values for capitalists, instead of themselves, is unpaid. This is literally similar to feudal serf's corvée, which was unpaid. Capitalists take the advantage of workers and encroach the surplus value produced by workers and live depending on the value produced by workers, making more commercial benefits and "reinforcing the power it enslaves"(Zwolinski et.al., 2017).

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Marx's theory of exploitation is based on the labor theory of value, while this theory, which is also endorsed by early classical economists, faced many insurmountable difficulties and has been questioned over the years (Nozick, 1974). Though Marx's theory is out of date, it influences and encourages workers to awake and protect their rights as workers (Zwolinski et.al., 2017). In this thesis, Marx's theory of exploitation explains the primary causes of overwork, involution, and labor alienation. It reflects the dispossession of employees' surplus value by employers and can be easily understood and resonated with users who are Chinese digital laborers.

### **2.1.2 Labor exploitation from companies and institutions**

Labor exploitation can be exhibited in companies and institutions over centuries. According to Collins, the nature of capitalism and human make them exploit the surplus-value of workers as much as possible (1996). Capitalists create various social harms in their pursuit of profit, and the core of the social harm of capitalism in practice is the exploitation of people. Companies and institutions exploit their family, clients, supplier, government, natural environment, and most importantly, employees (Collins, 1996, p.46).

Some companies and institutions occupy a lot of living space and make unlimited claims to their employees until their lives are filled with work. Institutions adopt non-physical mechanisms, pose subtle pressure on individuals and put employees far away from other groups of people such as their families and friends. They cultivate voluntary compliance of employees or will be expelled (Sullivan, 2014, p.4).

Many companies and institutions give their employees extremely low salaries. They hired employees with high levels of education and forced them to overwork for 80-100 hours per month by awarding them with high bonuses (Bill, 2021). If they did not make it, companies and institutions fired them and hired other employees with high levels of education (Collins, 1996, p.46), making employees lack choice but to overwork to keep a job.

There are several reasons for the above actions of exploitation from companies and institutions. According to Jones, capitalists are not restrained by corporate social responsibility discourses. Capitalism is born with sins, and sins help to get profits (Collins, 1996, p.43). Additionally, employers must increase demands on employees to cope with the situation of high unemployment and highly competitive job market. They must also cut the cost as much as possible. Another reason is the development of technology. The continuous internet connection and the tendency of international have extended the working hours much longer than it used to be and keep employees work in different time zones all over the world. Smart phones from the companies are not only considered the award to employees but also binned them with work more closely (Sullivan, 2014, pp.6-7).

The manifestation of labor exploitation from companies and institutions is also closely correlated with the issue of involution and labor alienation in China.

In today's world, the exploitation issue has been eased after the campaign of employees, especially in Western countries, where the eight-hour workday has been

widely applied, and there are sound legislation and enforcement of the labor law. In China, the exploitation of blue-collar workers is stemmed by perfecting the labor law after the suicide of an employee of Foxconn, the sweatshop. However, the invisible exploitation of white-collar workers in office are getting severer: more overtime works, less protecting of employees' rights.

## **2.2 Digital labor and the issue of involution in China**

### **2.2.1 Introduction of involution**

Involution is the issue that needed to be dealt with in the form of critical design and speculative design of the thesis because of its complexity. Digital labor in China refers to young people working as programmers, designers, and other developers for digital product and platform in internet and technology companies in China. For now, many of them are suffering from overwork and "involution" (Zhu, 2021, p.33). The compression of time and space, which is a typical phenomenon in involution, is considered the extreme expression of exploitation. Digital laborers in China are selected to be the target users.

"Involution" in public discourse mainly indicates irrational competition caused by work internal consumption and stagnation induced by competition. The term enfolded was originally borrowed from a biological concept to describe the stagnation of social structure. It was first coined by anthropologist Clifford Gertz in studying the agricultural economy of Indonesia ("Involution", 2019). The Chinese scholar Huang Zongzhi used this concept to describe cotton cultivation in the middle and lower reaches of the Yangtze River from the 14th century to the 20th century. In some historical periods, cotton was grown on a large scale for almost zero marginal pay, just to keep family members alive. From the perspective of Huang Zongzhi, "enrolling" is "growing without development". Using the concept of "inner coil" to describe the current work content of workers suggests that the work content of workers does not have much significance for the breakthrough of work goals and self-improvement in a specific structure. Workers only have to do this work content

because of increasingly intense competition. Such work content can only give people the lowest meaning of living rather than more creative value (Zhu, 2021, p.33).

The development of platform economy not only gives birth to new labor relations but also brings about the adjustment of labor force employment structure. It also contributes to the generalization of overwork (Zhu and Wang, 2021, p.60).

In 2021, the "inner scroll" and "996", which had been hotly discussed in 2020, once again entered the field of public opinion with the ferment of a series of hot social events. The sentiment points to general anxiety among workers, white, and blue alike. Even young people who work in bright office buildings and earn a good salary can feel this anxiety and are under enormous psychological and physical stress (Zhu, 2021, p.33). Moreover, young students who are about to enter the labor market are affected by this anxiety. They feel confused and powerless because they cannot see the meaning of their future jobs. As mentioned by anthropologist Xiang Biao, for today's "migrant workers," work seems to solve material poverty, but it presents itself the poverty of meaning (Wang and Ge, 2020).

Digital labors in China suffered from compression of time and space of work process, forming a specific sign of overwork and exploitation. The so-called "996" and "715" represent that most of workers' lifetime is confined to the cubicle in the workplace, exploiting their possibility of leisure time and other activities (Wang, 2021). This is the extreme expression of what Western Marxists like Castel called the "compression of time and space" of the working class. Work time and space are significantly compressed, which is the typical state of capitalist work. With new technology, however, workers are more fully controlled, and even bathroom breaks are accurately measured (Zhu, 2021, p.33). Capitalists put "a very careful eye on for a minute without labor waste". The development of digital technology changes the traditional way of artificial supervise labor process, camera, monitor the invention and application of digital monitoring tools such as improving the efficiency of the

supervision of workers, get rid of the artificial monitoring of physiological factors, and increase the labor intensity of laborer (Zhu and Wang, 2021, pp. 62-65). Under the existing laws, capitalists cannot "extend the working day indefinitely to the extent that they cannot recover from three days of labor in a single day," while they can "steal the eating and rest hours of the workers piecemeal." Concurrently, the automatic supervision under the digital technology also compresses the non-productive time in the labor process to the minimum, making "workers become personified labor time". The supervision of working hours is only one aspect of the problem. From another perspective, the spatial scope of labor process supervision is further expanded with the application and popularity of mobile devices and wearable devices (Zhu, 2021, p.33). Enterprises can track and supervise workers' work in multiple fields through data feedback of various devices (O'connor, 2021).

### **2.2.2 Three features of involution**

The compression of work time and space is specific for digital laborers in traditional employment relationships. The overwork of laborers in traditional employment economy is a kind of technical overwork. Compared to the other three types of digital law, it has a relatively stable labor relation. Owing to digital and traditional enterprise upgrading and more performance for technology to assign the fatigue dynamic management and control of labor, enterprise organization form tends to be flat, while the worker' "labor" of time and space is still relatively fixed and linear (Zhu and Wang, 2021, pp. 62-65). Additionally, the skilled workers in digital capital enterprises are especially represented by software developers, and the overwork and involution of this type of digital workers are more reflected as incentive overwork (Wang and Ge, 2020). Compared with workers in traditional employment forms, software developers have digital expertise and strong bargaining power in the labor market and have direct labor contracts with digital capital companies. Nonetheless, this internal institutional compromise does not prevent capital from introducing external competition (Zhu and Wang, 2021, pp. 62-65). Therefore, there is an element of instability in this labor relationship. The development and promotion of the crowdsourcing model have

increased the "insecurity" of software workers. For software developers, the "sense of crisis" brought by external competition leads to the "trinity" self-motivation tendency of self-control, self-commercialization, and self-rationalization. Under market competition and internalizing various uncertainties, "self-motivation" becomes the main form of software workers' overwork. Developers are expected to develop a work-centric lifestyle, with long hours, unpredictable impacts of work's ups and downs on life, and a lack of control over work as part of their "daily life" (Zhu, 2021, p.33). Moreover, the overwork of platform gig workers is more reflected as a kind of income overwork in the gig economy driven by the "platform-individual" model (Zhu and Wang, 2021, pp. 62-65). Compared with the labor of traditional hired workers and skilled workers of digital capital companies, the labor of platform gig workers has higher flexibility in labor time and place. The salary mode is mainly based on piece-rate wage and performance appraisal. The "central-scattered" structure of platform enterprises and individuals is dramatical. The "social factory" production mode corresponding to this structure results in extensive competition among platform gig workers. From the perspective of the platform, the versatility, standardization, and expanded social production possibility frontier of a traditional organization with the organic combination of the market reduce the barriers to entry at the same time, leading to a long-term labor buyer at odd jobs and weakening the bargaining power (related to the skills, experience, and self-organization degree) (Wang and Ge, 2020). In the "platform-individual" relationship, the phenomenon of labor de-relationship is very common, suggesting that the traditional labor relationship, which combines the dependency (hireling) and guarantee, faces challenges in the platform economy. Consequently, odd jobs need to increase working hours or labor intensity to maintain life and realize self-reproduction and life reproduction (Zhu and Wang, 2021, pp. 62-65).

Another sign of involution is the poverty of work meaning, which is manifested in the fragmentation of work relationships. In the past, industrial workers could establish their collective identity and social belonging through various formal or informal

worker organizations and collective actions in the face of the management, though the labor-management relationship was not balanced. However, in the era of new technology, factories are flat structures where workers are connected through projects and tasks, making it difficult to establish close connections between work departments. Many workers are connected to business in a way like day jobs (Zhu and Wang, 2021, pp. 62-65). For example, it is difficult for workers in express delivery and express service industries to establish the solidarity and connection that industrial workers had when they worked on the same production line in the past (“Involution”, 2019). In many cases, it is tough for workers to effectively achieve self-organization, resulting in the loss of their organizational affiliation and identity to the factory and even their identity to the job. They are no longer workers in the traditional sense but become "beating workers" who lose their subjectivity. In extreme cases, they even appear as "Buddhist-like workers". In other words, the whole industrial workers are gradually fragmented, and workers' self-identity and collective consciousness are difficult to construct. Owing to the inability to unite, workers' sense of class significance dissipated, and even the label of the worker was removed to be replaced by the concept of the "worker" as the "lonely masses" (Zhu and Wang, 2021, pp. 62-65).

Apart from the involution caused by compression of time and space and the poverty of work meaning brought by employers and the intensive market competition, there are other features of involution where employees themselves become initiative. The highly simplex target and value evaluation are one of the most important reasons for employees getting themselves into involution (Wang and Ge, 2020). Chinese people are in a highly integrated competition from the beginning to the end. Specifically, the life goal of most people is to get high scores in schools, obtain a job in the government or top companies, gain a lot of money, and achieve the class ascent. The social values of chasing money and fame has historical reasons – Chinses have a preference in working in government and earn money, and after the Reform and opening there is a trend of entrepreneurship. In western countries, the situation is

different: the social atmosphere is more losses, people are encouraged to do anything they want, and doesn't need to concern about not be able to earn a living because of the comprehensive social security and welfare. Other reasons for that might be the highly limited market in many industries of China, not like many western countries which have markets all over the world, especially after the pandemic, where local companies must compete each other. When it turns to individuals, all employees are under intensive competition that everyone is alternative. If they are replaced by others, they would lose the income. Chinese people go to great lengths in every aspect of their daily lives for gaining a small competitive advantage in society, squeeze out the living space of others, and cause mental exhaustion and waste.

In a working environment with intensive competition, especially in technique companies, many employees tend to work hard, though not necessary, just to beat other colleagues. Meanwhile, some of them pretend to work hard and be volunteered to work overtime just to please their bosses. This situation is not beneficial to employees who finish their work with high efficiency and never work overtime since their bosses would consider them to be not working hard enough. Therefore, they must work harder and work overtime just to get the same treatment as other employees. A metaphor describes the situation precisely that if a line of people in a theater stands up, anyone else in the room should stand up or they may not see the stage. The so-called "self-involution" is closely associated with the involution caused by external environment, while employees suffering from "self-involution" can potentially make actions actively by themselves.

Involution is a severe issue in Chinese digital labors, and this thesis focuses on the issues of involution and alienation. Among them, the latter explains the nature of involution. The causes of issue of involution are from different stakeholders: limited and intensive market, profit-seeking companies, development of technology, new employment relationships, deficiency of legislation and regulation of governments, and the highly simplex target and value of employees. These reasons make the issue a

wicked problem and difficult to deal with. In this thesis project, I will use the critical and speculative design methodology to create a critical app. This app will help users to address the issues of involution and alienation and raise users' awareness of them by quantifying the level of alienation.

## **2.3 The definition of alienation**

### **2.3.1 introduction of alienation**

In this critical design project, the concept of alienation acts as a scale or standard for measurement, and the score of alienation shows users how severe their issue of involution or alienation is, to raise their awareness.

The concept of alienation can be considered a type of psychological or social ill that includes a separation between a self and other that property belongs together. The concept of alienation is closely associated with Hegelian and Marxist ideology and theory. Three constituent elements of a subject, an object, and the relation between them are introduced to clarify the problematic separation, which is the characterization of alienation (Leopold, 2018). The theory of alienation, especially labor alienation, has the inner link with the issue of involution. Particularly, they are all related to the labor exploitation, bringing the compression of working time and space and the meaninglessness of work. These features are all demonstrated in involution and alienation.

This subject refers to a self, namely a person or an individual agent in most cases and can also be a group of some kind. The relevant object includes entities that are not a subject, another subject or subjects, and oneself. It could be the nature world, a social practice, an institution, or social norms. The relation could be problematic and happens between a subject and object that properly belong together. The “separations” consist of various words such as splits, bifurcations, divisions, indifference, meaninglessness, and disconnection (Leopold, 2018).

### **2.3.2 Marx on alienation: four aspects of alienation**

The alienation theory of Marx is influential in the theory of alienation (Leopold, 2018). The alienation theory of Marx is also widely known in China, just like his theory of capitalism and exploitation. Influenced by the discussion of socialist ideas and Engels's Outline of a Critique of Political Economy in late 1843, Marx began to acquaint himself with political economy. He also began to critique the political economists and drew parallels between Hegelian philosophy and classical political economy, both of which argued that human labor plays an essential role in the essence of humanity (Gingrich, 2002). Labor is the difference between humans and animals. Animals have live activities only for survival, while human has the will and consciousness to their life activity and labor. According to Marx, the productive forces have been higher than ever in the history of a capitalism society, and it is possible for humans. Meanwhile, they have the ability for creation to build up a better society. However, capitalism also thwarts, distorts, and limits human potential (Gingrich, 2002).

In the Manuscripts of Marx, alienation is initially an objective feature in the process of organized and exercised human labor (1964). Alienation is rooted in human labor and the material world. The separation of work or labor from the worker and the separation of the products of labor from the worker are the main parts of alienation, according to Marx. Both labor and the products of labor are taken and controlled by employers (Leopold, 2018).

There are four aspects of alienation labor. The first is the separation from products of own labor. Some sociology writers use alienation in the Marxian sense, which indicates the alienation from private property and capitalism to workers. Workers produce commodities for capitalists, not for himself (Musto, 2010). Capital created from commodities dominates the worker himself. From the perspective of contemporary, the more commodities a worker produces, the more his production

increases. power and extent, the worker gets poorer. The working condition of workers also gets worse. In other words, the products created from labor have been physical objects, which is an objectification of labor. The performance of work, workers, and labor are considered devolution, and workers lose their essential things for work and life, according to Josephsons. More output into work and less self-residual are the expression of the “separation alienation (Gingrich, 2002).

According to Hadden, "the product of labor is an objectification; labor is realized in an object (1997). However, these products, under capitalism, are produced without the control of workers but appropriated by other people. Workers have no idea about the products. Products, the means of existence of workers, where workers put his/her life, have been deprived from workers. Therefore, there is a separation between the products and the worker (Gingrich, 2002).

The second aspect is from the Process of Production or from Work Itself. Marx’s views about an integrated form of labor are that the labor process, the content, and means of labor are controlled and decided by workers. However, the work is external to the worker under capitalism. It does not meet the need of workers but is only a means of earning enough money to buy necessitates. Various sociology writers and researchers prefer to explain alienation with more social-psychological interpretations such as powerlessness, meaninglessness, and social isolation (Giddens, 1971, p.17). These forms of alienation may be caused by problematic organization structures, lack of ownership, social disorganization, or technology issue. In the work, the alienation is considered the loss of control over work, the lack of meaning in work, and the difficulty of self-expression in work. Therefore, people possessing control, meaning, and opportunities within organizations, such as doctors and teachers, have a lower sense of alienation compared to assembly line workers (Gingrich, 2002). Workers cannot fulfill himself in the work but feel exhausted. They feel free only when they eat or sleep, which is considered animal functions but not human.

The third and fourth aspects are from species-being or humanity and human potential, and from other persons. The character of humans is free and conscious activity and distinguishes humans from animals. Alienation in this study suggests that workers act more like machines, or tools, but not humans. Work becomes the only means to satisfy the need to maintain physical existence. Besides, the social relationships change. For Marx, people used to exchange social relationships, while they only exchange money under capitalism. Human relationships become market relationships (Gingrich, 2002).

Marx has explained four aspects of alienation, and these features are demonstrated in the modern labor. Since the alienation theory of Marx has great mass base in China, illustrating the alienation theory of Marx and quantifying it as a score will make the score much more convincing and effective because almost all Chinese people are familiar with this name (Gingrich, 2002).

### **2.3.3 The manifestation and elements of alienation on modern labor**

In the modern society, alienation is also reflected in various aspects. The first manifestation is on work. According to Dean, there are three components of alienation: powerlessness, normlessness, and social isolation (2014). The level of alienation is related to occupational prestige, level of education, income, background, and age (Shepard, 1977, p.2). According to the alienation theory of Marx, Powerlessness can be demonstrated from the separation between workers and the products they create, as well as the effective control of the economic destiny (Marx, 1964). Additionally, the scientist, the civil servant, and the professor also lose their control over work.

Normlessness is developed from Durkheim's concept of anomie. Normlessness happens when there are sudden economic losses or gains, inducing the change in previous scales (Dean, 1961, pp.10-14).

Alienation is associated with job satisfaction, which is affected by technology. Technology is one of the major determinants of the structure of organizations and therefore influences the job characteristics. There are three stages of the application of technology on work: craft production system (low job specialization), mechanized production system (high job specialization), and automated production system (low job specialization) (Dean, 1961, pp.5-10). According to Blauner, worker control, social interaction on the job, skill level, and job specialization are four job characteristics influencing the relationships between technology and working satisfaction. Research reveals that the higher the skill and control levels of workers, the higher their levels of job satisfaction. Additionally, minor job specialization, repeatability, low skill requirements, predetermined tools and techniques, and mechanically controlled work rhythms could result in a low level of working satisfaction (Dean, 1961, pp.10-14).

Blauner tried to quantify worker alienation, which is discussed as the politically charged topic with scientific approaches (Shepard, 1977, pp.3-7). There are also four characteristics contributing to the level of alienation: technology, division of labor, social organization (degree of bureaucratization), and economic structure.

Blauner used four aspects of alienation in work distinguished by Seeman:

“powerlessness exists when workers cannot control their job activities; meaninglessness exists when workers contribute only minutely to the total product; social alienation exists when workers do not belong to close work groups; self-estrangement exists when workers view work as a means to some other end such as making money, rather than as personal self-fulfillment.” Cotgrove reported that self-alienation, or self-estrangement, happens when a worker is involved in the work instrumentally, or does dull and monotonous work, or does the work that lacks of self-recognition. To sum up, technology and job characteristics are imperative for the influence factor of job satisfaction and alienation level (Shepard, 1977, pp.3-7).

Moreover, work has the need for the self-actualization and psychological growth. Self-determination, self-initiative, independence, and courage are necessary in work. Work offering opportunities for worker to control can make them exercise initiative, thinking, and independent judgment, so as to improve their levels of self-esteem, openness, and communication with others. On the contrary, work lacking control and creativity has negative effects especially among young and privileged people (Dean, 1961, pp.10-14).

The alienation in work can cause the alienation in life. Marx and Engels argued that the alienation from work to worker would lead to the alienation of the whole capitalist society (1964). Only a proletarian revolution that frees the working class can end the situation.

The first manifestation of society alienation is alienation of communication (Wang and Chen, 2020, p.29). When Marx expounds the four provisions of alienated labor, he has already involved the alienation of communication and revealed the distorted relationship between people through the analysis of alienated labor (Gingrich, 2002) . In accordance with the law on mill, communicative alienation has the following several layers of meaning, communicative alienation gradually stand out, because of the convenient traffic and communication, make increasingly frequent contacts between people, also is inevitable, but relationship of modern people are increasingly to benefit as the center, interpersonal relationship gradually indifference alienation, complicate exchanges due to the existence of private ownership, Alienation of alienation is a manifestation of capitalist social alienation (Wang and Chen, 2020, p.29 ).

In the process of Commodity Exchange, to obtain more material wealth, exchanges the two sides will hide, depression, camouflage their true feelings, also may to extract, for the greater good, in the process of interaction between a cheat, fraud, the use of the other side of the phenomena emerges in endlessly, these will make connections

between the main body of trust. In the communication between the two sides, people no longer feel freedom, but anxiety, as hedonism and egoism gradually infiltrated into all aspects of communication. Meanwhile, communication alienation gradually disturbs the social order and is not conducive to the healthy development of society (Wang and Chen, 2020, p.30).

The second aspect is the alienation of daily life. The concept of alienation should also become more concrete as society changes. Lefebvre suggested that "'everyday life' is everyone's business, our concrete life itself." Alienation pervades every aspect of everyday life. Alienation refers to the division of people's daily social activities into different parts in column aspects: the daily life of the individual, family, marriage, labor, entertainment areas such as separation. Lefebvre demonstrated that people's daily lives have been controlled by asset class, whether how petty little thing, do is run. People in modern society have become puppets under the alienation of daily life and do not have a good understanding of their own life. In the capitalist society, Lefebvre called for "transformation of life" (Gingrich, 2002). Alienation has inevitably appeared in people's daily life, and people's daily life has become more and more fragmented. Simultaneously, the spiritual world has become more and more painful. In Habermas' view, there is the phenomenon of the colonization of the life world in capitalist society. The colonization of the life world indicates that money and power replace the way of speech gap as the medium of communication, and people's continuous pursuit of material interests leads to the invasion of political and economic systems into people's life world. People are not aware of the alienation of daily life and gradually become a walking dead controlled by the alienation of daily life. People's labor becomes simple, fixed, and standardized, while they lose their individuality, mobility, and creativity (Wang and Chen, 2020, p.31).

The third part is the alienation of science and technology. After the development of the third scientific and technological revolution, the innovation of science and technology has an increasingly far-reaching influence on people's daily production

and life. Habermas believed that the development of science and technology has brought two aspects: "first, science and technology have become the first productive force, which plays a huge role in promoting the development of social economy; second, science and technology become an 'ideology' and exist as a new ruling power. (Wang and Chen, 2020, p.31)" Although science and technology have become powerful to promote the development of social productive forces, the alienation of science and technology potentially threatens people's survival and life. "The so-called alienation of science and technology implies that the creation of science and technology has become an alien force that rules and suppresses people: it is not 'for me', but 'against me'.(Zhu, 2021, pp.60)" With the development of science and technology, science and technology gradually control, rule, and manage people. As a result, people gradually lose initiative, creativity, and self-judgment ability, only subject to the slavery and control of science and technology. The development of science and technology affects not only the natural environment but also people's living environment. Technological rationality can lead to the creation of "one dimensional man". With the development of science and technology, the material living conditions of workers have been significantly improved, and the whole society has gradually lost its internal motivation to transcend itself. In the society ruled by technological rationality, workers have gradually lost their resistance to the bourgeoisie and are no longer a separate social force (Wang and Chen, 2020, p.31). As a free and creative man, he lost critical consciousness and negative consciousness and will eventually become a one-way man in the technological society.

The fourth part is the alienation of consumption and mass culture (Wang and Chen, 2020, p.31). People create advanced machines applied in daily production and life. This not only improves social productivity and material wealth but also stimulates social consumption. Meanwhile, consumers become production and consumption machines. In the alienation state, consumption is no longer simply to meet people's needs. Instead, people are manipulated to buy goods, pay too much attention to material consumption, excessively grab material wealth, enjoy the supremacy, and are

immersed in the sensory and psychological pleasure brought by consumption, aimlessness, and irrational consumption. In capitalist society, capitalists try their best to improve product performance and beautify product style and increase the sales of their products to accumulate capital under the development of science and technology and the pursuit of maximum benefits (Zwolinski, 2017). As a result, there is a greater variety of products available for consumers to sift through. Secondly, merchants' propaganda through various channels also stimulates the emergence of consumption alienation. The popularity of consumerism induces consumption alienation. Finally, people's desire to gain freedom and happiness through consumption leads to consumption alienation. Additionally, consumption alienation will lead to the loss of people's autonomy. "It is not the production of goods to meet people's needs, but the existence of people to consume goods, and people become the slaves of goods." Mass culture is generally accepted by the masses and has become a means of ruling and controlling people's ideology in modern society. To some extent, this propaganda leads people to support or oppose government policies. The bourgeoisie can control people's thoughts and consciousness through culture and realize its rule over people and society in a more obscure way (Wang and Chen, 2020, p.31).

The alienation of mass culture manifests itself in the commercialization, standardization, and identity of cultural products, making them lose their original creativity and criticism ("Involution", 2019). People cannot consume cultural products freely and happily. Vulgar cultural products gradually control people's spiritual world. Under the guidance of advertising, people constantly buy all kinds of products. Influenced by the way of thinking and behavior of idols and stars, people gradually lose their ability to think independently and their ability to make self-judgment on events, changing from active consumers to passive consumers. Whatever one chooses to do, whether at work or in leisure, will be influenced to a certain extent by admass (Wang and Chen, 2020, p.31).

To sum up, the alienation in the workplace is related to powerlessness, normlessness, and social isolation of work and is influenced by working characteristics such as job

satisfaction, skill level, the sense of control, achievement or fulfillment. The alienation in work induces the alienation in life, which can happen in the aspect of communication, daily life, science and technology, consumption, and mass culture.

This critical design project aims to raise users' awareness of the issue by quantifying and qualifying the alienation in the workplace. Then, these working related features selected and concluded from the following literature are regarded as the elements to measure working time, working intensity, and working characteristics including working satisfaction, sense of control, repetition, skills level, creativity, self-development, health condition, users' value, and employee rights issue. These data are collected through a planner system where users are encouraged to manage their work. The data of working time and intensity are collected when users add their tasks and events in the planner. Working characteristics are tracked after finishing each task and event. Health conditions, users' value, and employee rights issues are recorded by users to actively fill in their information. Afterward, these data are calculated in a certain algorithm, and a score is output regularly in the interface of "scoring and reporting". On this page, not only the score is displayed, but there are also abstracts of five categories of the alienation. Moreover, users can choose each category to see specific data, diagrams, and trends in the weekly view or monthly view. Underneath are the suggested actions to alleviate the current issue according to the users' levels of alienation, as well as some educational articles about alienation and involution. The score, the diagrams and suggested actions can provide users with surprising feedback by the power of number, and therefore raise their awareness of the issue.

## **2.4 Solutions on handling the issue of exploitation, involution, and alienation**

Considering how to handle the issue of exploitation, involution, and alienation, weaken the issue of expanded working time and workload, the meaninglessness of work, and the unnecessary competition within workers, some possible solutions are proposed as follows.

China has comprehensive labor laws, however the law enforcement is not satisfying employees not familiar with the law, feel trouble to use it, afraid of the retribution from employers, concerned that it would leave a record if they use labor arbitration; the companies' prevention or even intimidation of using the law; the inaction from government of enforcement. Also, though there are clear provisions in the Chinese labor law of protecting salaries of employees, the overwork protection part is missing. From the perspective of Legislation and law enforcement, the government should first legalize some contents of labor relations in the legislative procedure, especially the labor working hour standard, which is an essential indicator of evaluating excessive labor. In the concrete countermeasure, there should be a governance mechanism of prevention first, followed by the combination of prevention and remedy (Zhu and Wang, 2021, pp.60-62). The standard of "work-life balance" should be added as a core rule in the legislation. From the perspective of companies and employers, they should accept ethical education and be limited by law enforcement in protecting workers' rights. The company should modify rules and management, obey the ethical standards, and invite employees to the management process of the company. Employers should change the idealism that employees who work overtime are hard-working, so as to improve the ability of management and get rid of unnecessary hard work (Wang and Chen, 2020, p.31).

Employees should "rebuild" or "return" to their life, connecting the work with family and education. Because in many cases the heavy intensive workload and work relationships within workers should be strengthened. Meanwhile, employees are encouraged to share their thoughts, stories, and information, creating a public space for them. Employees should increase their working efficiency and actively communicate with their boss or colleagues when there is unseasonal heavy workload. When dealing with meaninglessness of work, there should be solutions against "spiritual poverty". Receiving a better liberal arts education will allow them to reflect on politics, economy, and society, and become more independent in mind and get rid of the singular social value evaluation system (Zhu, 2021, pp.35).

Since the issue of involution and alienation in the workplace is a wicked problem hard to solve in the real world, this thesis project uses the critical design methodologies and aims to raise the users' awareness of the issue and therefore help them to get rid of it. Apart from the planner system collecting user working data, the scoring system mentioned above also provides suggested actions according to the different levels and issues of every user. Some suggestions are concluded from the literature above and the problems in the reality, such as communicating with the boss or colleagues about unreasonable workload or career plans, paying more attention to yourself rather than work, having more rest, and reporting to the union or proceeding the labor attribution when the employee rights have been violated. Besides, users can record these actions when they actually do in the real life in the "journal" page or share related topics or information in another place called the "community". The action of recording and sharing can increase the score, enabling users to be motivated to the app and change their value and action more effectively.

## **2.5 Summary**

The literature listed above introduced the theory and manifestation of exploitation, involution, and alienation. The theory of Marx's exploitation is based on the labor theory of value. It argues that only labor can produce value beyond that, which is needed for its own reproduction. Therefore, Surplus value, which is the difference between the value a worker produces in a certain period and the value of the consumption goods supporting the living of the worker, is encroached by capitalists and "reinforces the power it enslaves". The exploitation is reflected on companies and institutions. They exploit their employees, paid them low salaries, and force them to work for longer time. This situation is caused by the needs of companies for getting profits as much as possible to cope with the situation of high unemployment, highly competitive job market, and the developed technology.

The theory and manifestation of alienation are a type of psychological or social ill, involving a separation between a self and other that property belongs together. According to Marx, the separation of work or labor from the worker and the separation of the products of labor from the worker are the main parts of alienation (1964). There are four aspects of alienation: the separation from products of own labor, from the Process of Production or from Work Itself, from species-being or from humanity and human potential, and from other persons. The more the products are created, the poorer the worker's performance. As a result, workers lose their control of the work and products they create and are separated from their products. Work becomes the only mean to meet the basic needs for living, but not for self-actualization and self-expression. Under alienation, workers are treated as tools instead of human. They also exchange social relationships for money.

There are several elements and manifestation of alienation. Alienation can be demonstrated as powerlessness, normlessness, and social isolation on work, which are related to level of education, income, background, and age. Alienation happens when workers lose their control over work and products. Alienation is also correlated with job satisfaction, which is impacted by job specialization, skill requirements, and the sense of control.

The alienation on work can lead to the alienation in human's life. People build social relationships for money and benefits. Their daily lives are controlled by capital and technology, and the lack of fulfillment and creativity. Consumerism, advertisement, and vulgar mass culture can deeply influence people.

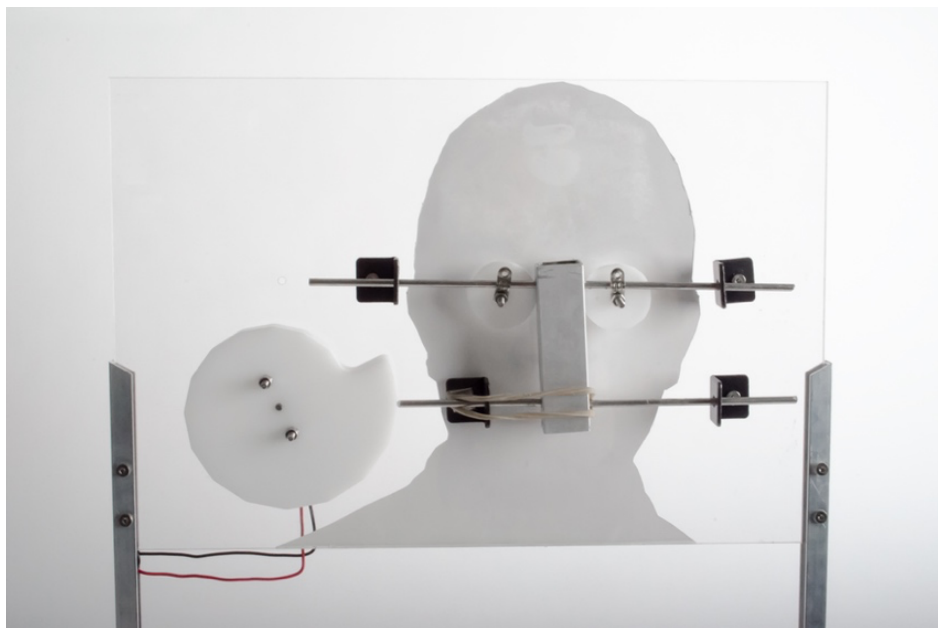
The issue of involution happens on "digital labors" especially in China. "Involution" in public discourse mainly refers to irrational competition caused by work internal consumption and stagnation induced by competition. The involution in China stands for the compression of work time and space, as well as surveillance in the workplace. Another feature of involution is the fragmentation of work relationships. Involution

can be observed in digital labors in traditional employees, skilled workers in digital capital enterprises, and platform gig workers.

Involution and labor alienation of Chinese digital laborers have been the background and the issues to be handled in this thesis project. The literature explains the issue of involution and the relationships between overwork, labor exploitation, involution, and alienation. With the critical design methodology, the mobile app aims to raise people's awareness of the issue by recording their working tasks and features and quantifying it by a score of alienation. The way how alienation level is calculated is based on the literature of alienation theory and involution that clarify the elements of alienation. Additionally, suggested actions are designed following the literature of solutions towards alienation.

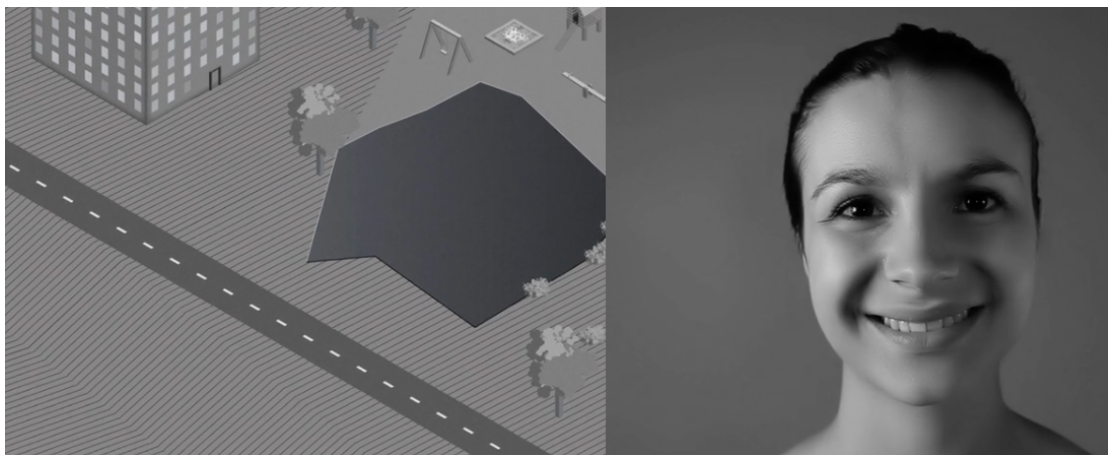
## **2.6 Context review of speculative and critical design works**

There are a significant number of artworks of critical design or speculative design to reveal the negative effect of technology and other social issues. These artworks are great reference for a critical design that remind people of labor alienation.



*Figure2: image of “The Gossip of Things”*

“The Gossip of Things” is a speculative design artwork revealing the issue of surveillance of employees by a huge company in the virtual world (<https://designawards.core77.com/>). Global conglomerate Grupo Carso is a huge company in Mexico and has almost absolute control of some services throughout Mexico. The creators of the project imagined a future where Grupo Carso would represent a technological monopoly and establish new surveillance paradigms using Internet of Things to monitor its employees. To manage the situation, the creators designed some devices, such as a constantly tapping pen, a constantly scrolling mouse, and a stimulator of eye movement, to “cheat” on the surveillance paradigms (Studio José de la O, 2019). It is a speculative design based on a predicted future with severe situation of surveillance, and the solution “cheating” to the situation presents a dramatic effect and therefore makes audience to reflect on the ridiculousness of the force of surveillance. The social issue that the project is trying to reveal is related to surveillance and overwork in the workplace. Hence, this project becomes a great inspiration of my project on how to create virtual world settings and make a storytelling beyond all expectations.



*Figure3: image of “Belief Systems”*

Another speculative design work named “Belief Systems” handles the topic of the choice freedom (<https://blog.depositphotos.com/speculative-design.html>). The background of the work is that nowadays the algorithms in digital products and applications are everywhere to help us to make decisions. In this project, the creator developed six different video scenarios, reading people’s facial expressions with

algorithms to predict the likelihood of their divorce and which product a customer wants. This is also a critical design reminding us of if we really want technologies to unite to ease any kind of manual effort (BERNHARD HOPFENGÄRNTER, 2009). This artwork has created the whole storytelling by several videos. All of them adopt simple and gloomy color and weird human face expressions, use a lot of scenes to describe devices of tracking people's face, and therefore heighten a strange and depressing atmosphere. The inspiration of this artwork is using design language to create the certain atmosphere and let audience feel the affect and emotion, so as to raise their awareness of the issue.

Some science fiction movies can be considered great speculative design artworks, or more specifically, thought experiments. The main purpose of a thought experiment is to "test ideas, refute theories, challenge limits, or explore possible implications (Barendregt and Vaage, 2021, pp.374-402). Some anti-utopia and cyberpunk science fictions such as 1984 by George Orwell and works of Philip Dick and William Gibson are speculative. In 1984, the author established a society of totalitarianism full of surveillance devices, brainwashing publicity, and extreme punishment to citizens, while everything of the virtual world in some of the fictions of Philip Dick is marketized and monetized (Dunne and Raby, 2013, pp.169-175). "The Black Mirror" is another typical TV series revealing social issue by similar themes, such as criticizing technology, anti-utopia, and cyberpunk. One of the means of how these fictions or TV series construct the world settings is adding up the exaggeration and severity of the world. For example, there is a charge named "anti-consumerism" in the "Space Merchants".

These three examples of critical design and speculative design work adopt a specific way of storytelling, which constructs the virtual world settings by exaggeration and "dark imagination" (Dunne and Raby, 2013, pp.169-175). In this way, the theatricality is added to the work, making it beyond the expectation of the audience. This

mechanism of design inspired me on creating a virtual world of severe situation of alienation, as well as a comparison with a parallel world free from alienation.

## **2.7 Mobile apps references**

Mobile apps are programs or applications that runs on mobile phones, tablets, or smart watches. Apps are originally as tools for increasing people's productivity and afterwards they expanded to all kinds of area by public demand. In today's world, mobile app is widely used by all kinds of people: for listening or making music, taking photos, or shooting videos, watching news or social networking, personal health care and tracking, gaming, and shopping, etc. Various kinds of media become digital (Reimann, 2017). Mobile apps are closely connected to people's daily life and they have been used from the beginning to the end of the day.

There is big amount of mobile app act as management tools of many aspects of people's life, such as health app, self or time management app, habit tracking app or fitness app. According to research, these apps have effectively changed people's cognition and their actions. Although this thesis project is not making a real app for grounding, there are some structures and functions in commercial apps is mature and effective and can be considered great inspiration of making the app as the prop in the critical design. Most of these apps have similar functions and structures. Health tracking apps use the tracking and reporting system to track users' health data and provides them with regular abstract about their health conditions. In the self-management apps or project management apps, there is a planner system recoding users' plans, events, to-do list or reminders, and most of them are based in the calendar. There is also communities and shops in the app to create spaces for users to discuss, share user generated contents, and encourage users to purchase products. Additionally, points and reward system are widely in mobile apps especially tools or social medias to increase the user stickiness. Several health and fitness app that are

popular in China: Keep, Meiyou, Huawei fitness and health, Bohe health and Apple health are analyzed as cases studies as follows.

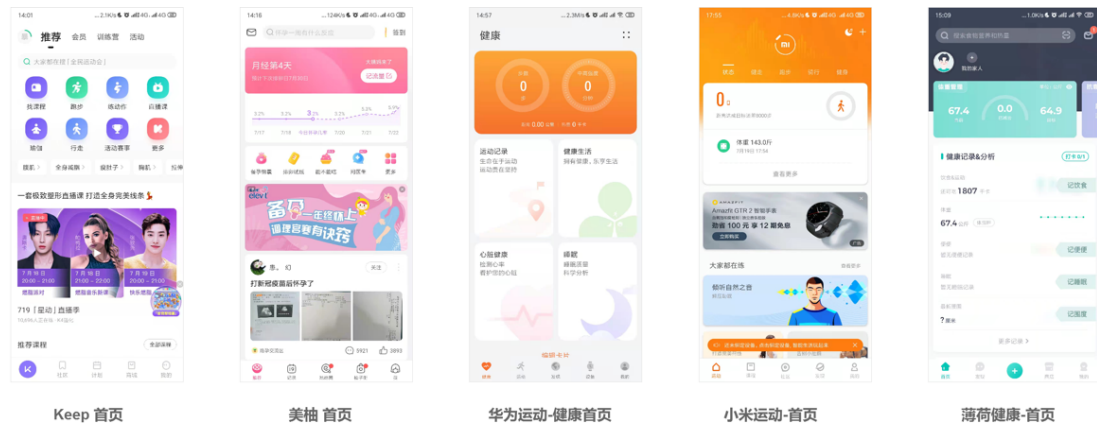


Figure 4: pages of health tracking apps

## Tracking and reporting system

Tracking and reporting system is a common structure in many health tracking or fitness apps. The target of these app is encouraging users to record their data, to reach their health or self-management target, such as losing weight, and predicting the period. To achieve this, there app provides users with access of filling in their personal information or records, mostly based on the calendar, and lead them to record on a regular basis (Yuan, 2021). In health tracking apps mentioned above users can also see diagrams or reports every week or month generated from the data they input, and these diagrams and reports provides a visible and direct view of their health condition, time used or progress they made.

## Case study: Bohe

Bohe is a health data tracking app focusing on weight management and diet recording. The core function of the app is to invite users to submit their basic health data, set the weight management target and recoding their health data such as food, work out, sleep, etc. this app also provides free or paid diet advisor. Take the food recoding as an example, to record what to eat in a day, users can click the button of “diet and

work out recording”, choose what food they eat in three meals, and they can modify the weight of the food to get more precise results of calorie. After adding all three meals, the app will provide users with nutrition advice, such as eat more vegetables, or less process food. By analyzing user’s diet habit and other health data, and provides advice, the app can help users with the weight management.

### **Case study: Meiyou**

Meiyou, is a health tracking app specially designed for woman, and the main functions are recording period, getting ready for pregnant, pregnant and raising baby. Take the recording of period for example, users are supposed to choose the date of the period, and during the period users can fill in information such as flow, symptoms, temperature, mood, etc. This can help users to predict the next period and get well prepared, provides advice when they are not feeling well, or remind them to see doctors when there is severe health problem.

### **Planner system**

There are also amount of time and self-management app in China like Microsoft todo, Dida checklist and TimeBlocks. These self-management app all have functions of adding tasks and events for, label and classify them as different types, add deadlines or reminds, setting priority. Some of the apps use the classic time management tool - a tomato clock, which enable users to create a certain period to focus on.

### **Case study: TimeBlocks**

TimeBlocks has the basic functions as a time-management app, and the structure of the app is based on the calendar, and every action happens in the calendar for users to see tasks and events straightly. Users can click on any dates on the calendar, and there will be a pop-up window for them to add schedules; they can also swipe the window to change the date. Tasks, habits, and reminders can be choosing in the navigation bar, however in a different weekly view to distinct from tasks. The interactions of this app are simple, quick and In line with the intuition of users.

### **Community and shops**

Community and shops also play an important part in mobile apps. In some tool applications, a vibrant community which provides users to discuss health related questions, can effectively increase the level of viability and user reservation of the app, therefore promote the commercial benefits (Yuan, 2021). The online shop is another way that generates user flow into profits of the app. The community also helps with creating a certain pheromone with the power of social media, encourage users to do more exercise, be more productive and what users share would influence other users.

### **Case study: Keep**

Keep is an app that provides an amount of popular fitness online course. It enables users to work out follow the video on the app and punch a card every time the user finishes the work out. It allows users to create work out plans by themselves using the calendar and provides paid consulting for the plan by the platform. It also has UGC context, which stands for a community that encourages users to share user-generated content. There is also a plate named “Group”, which is a group of people share their work out plan and supervise each other, and it is very helpful when starting a new habit. Finally, there is a shop sells all kinds of fitness related products such as fitness equipment and healthy food, and the shop plays an important part in cashing the flow in this app, along with the online course selling and membership fees.

### **Point reward system**

Point reward system, along with the loyalty or membership system, is widely used in digital games and mobile apps, especially e-commerce platforms or social media apps. Points refer to a reward given by the platform to users for their positive behaviors within the platform. It helps with the promotion of the user stickiness and transitions on the platform (Yanzifeifei, 2019). Some of the health and fitness tracking apps mentioned above used the point reward system to increase the loyalty of users,

such as reward users with points when they use the app to record personal data, take part in the topic discussion in the community, and encourage them to use the point they earned in the shop.

### **Case study: Keep**

In the perspective of point and reward system in the Keep, every time users get some points when they finish the work out with the video on the app, or they sign-in or share information in the UCG; they can use the points to exchange discount coupon and consume in the shop, purchase paid work out videos or professional consulting, or convert memberships. There is also a medal or achievement system in the app, rewarding users with special praise title and medal as their points increasing. The point reward system along with the medal system has effectively adds up users' sense of achievement, motivated them to spend more time suing the app and operating more transaction, which is similar to the point and achievement system in digital games.

### **Summary**

Research and reports show that health tracking apps and self-management app are effective for users to change their mind and daily habits in a certain extent. According to research evaluating some commercial mobile health apps through the content, usability, and efficacy, in the. Perspective of content, some apps conclude clinical guidelines, evidence-based treatment strategies and behavior change techniques. In the usability testing over 40% of users complete tasks independently in the topic of multiple health outcomes, and many users are satisfied with certain apps in the topic of heart disease (Jake-Schoffman, et.al., 2017, pp.3-5 ). Another research of health tracking apps shows these applications on smartphones can also help people with diabetes to control their fitness and health based on the evaluation standard on the criteria for promoting diabetes self-management as defined by Goyal and Cafazzo (Brzan, et.al., 2016).

These health tracking app and self-management app becomes a great reference for my prototype of the project for their potential effectiveness to change users 'mind and habits. The final version uses a similar structure to build the prototype: using a planner system to track people's working time, working intensity and other working characteristic for calculating scores of alienations, and using a report showing the score, diagrams of data and suggested actions. However, this thesis project is not a commercial app which will be used by users in the reality, it is a critical design concept that can attract people's attention towards certain social issues. These health app and self-management apps can actually be functional in people's daily life, helping them with work out, project management and health monitoring, and also the company can gain some commercial benefits. this thesis project, on the contrary, would not grounding in App stores and get any profits, but it focuses on raising people's awareness of alienation in the workplace and teach them how to get away with it.

## **Chapter 3: Design methodologies**

### **3.1 Critical design**

Critical design is the design more like "an attitude or position", which is the opposite of the affirmative design and reinforces the status quo (Dunne and Raby, 2013).

Critical design avoids conventional production and consumption in the traditional industrial design and takes the creative process of designing the objects to trigger debates and concerns. Critical design challenges traditional forms of industry design and advances the role of designers in a world of austerity and full of rising complex societal problems, ethical sociotechnical questions, and material scarcity. It also helps with rebuilding the social role. Critical design can empower publics, question technology, and challenge the expectation of use, forming the social and political

orientation (Malpass, 2017, pp.16-23). It is also considered the critique of the mainstreams design and challenges the role of common perceptions of the designer.

Critical design is used as a way for debates and discussions by designing objects and telling stories of how the object is used. It focusses more on finding problems in the discussion of subjects and social issues, rather than solving problems, regarded as a form of socially and political engaged activity (Malpass, 2017, pp.16-23). Critical design adopts product design as a medium to stress concerns between and within discipline bounds. The objects of critical design practice are related to rituals and conventions used daily. The critical design is achieved with scenes and theoretical props to discuss critical practice. A critical design practice would employ concepts to inspire and explain an argument. It learns from the design strategies related to art and focuses more on the concept rather than designers or objects. It puts the design in an “art gallery”. Critical design is not a serious form of design but a position or attitude. It inspires people’s reflections.

Critical design is used as the main methodology of the thesis project, especially the final version of prototype. The reason for choosing the critical design rather than the affirmative design lies in that the issue of overwork and involution is also a wicked and integrated problem needing the innovation and modification of government, companies, and employees, which is hard to solve. In the thesis, the design is performed from the perspective of employees, to reveal what and how they can do to change their minds, as well as the hope of easing the issue in a sustainable way. Therefore, the app aims to raise users’ awareness of the issue by quantifying the level of their labor alienation, showing the score of alienation, and providing advice of how to cope with it. Hopefully, users will feel shocked or surprised when seeing the score of alienation, and begin to rethink their conditions of work that they have been too alienated in the workplace without notice. Then, they can realize this severe issue. The suggested actions and the reward system are helpful.

### **3.2 Speculative design**

Speculative design is developed from critical design and was proposed by Dunne and Raby. Critical design focuses on stimulating discussions and making audience discover the problem. Speculative design offers a more open and wider invitation for users / audience to reflect. Speculative design is a type of critical thinking with logic and reasons and questions what is unreasonable in the real life without the effects of prejudice and emotion (Dunne and Raby, 2013, pp.18-22). Speculative design is usually adopted to handle “wicked problems”, which are hard to solve by now unless people change their cured attitude and actions. Questioning and critiquing the negative effects of technology are a common topic of speculative design.

There are various forms of speculative design: art installations, conceptual art, and performance art. Instead of making design for the reality, speculative design is for the future. Using future as an orientation, what is a preferred future and what is a future people do not want can be better understood. Speculative design usually begins with a scenario setting and opens a specific discussion (Malpass, 2017, pp.144-148).

Nonrealistic aesthetics is the main strategy of speculative design with physical props as the basic elements. Speculative design uses a “parallel world narrative” (Dunne and Raby, 2013, pp.18-22). The process of speculative design is detailed as follows. It creates a hypothetical scene with props and invites audiences / users to think critically in scenarios. Audience will use their imagination to create a virtual or future world, leading to a reflection on the real world. Meanwhile, it changes their mind and makes them eager to transform the reality and achieve a certain social dream. The outcomes of speculative design should be theoretically feasible, and it should be accessible from the reality to the virtual world created. It is not the future but the reality to be tested using people’s imagination, while the edge between the reality and virtual, before and past, is mixed up.

Some key points and concepts of speculative design will be used in the thesis. In the early stage of design, speculative design is taken as the main methodology.

Theoretical scenarios, future world or “parallel world”, are generally applied in the

speculative design as the narrative for storytelling. In the first and second prototype, the virtual world is created to provide the stage for the storytelling of the thesis project. In the first prototype, there are two virtual world scenarios: one with severe issue of alienation and the other without this issue. A system of a mobile app and a wearable device is designed to track users' personal data and then speculate their working conditions, which are used as the gist to treat users. However, there is a severe research ethical issue in this prototype that the user can be punished physically in the "bad scenario". As a result, this prototype is abandoned. In the second prototype, there is only one virtual world with the severe issue of alienation, and the mobile app aims to quantify users' level alienation by inviting them to fill questionnaires, showing the score of alienation, and encouraging them to take other actions to reduce the score. According to the feedback of others, this prototype, as a speculative design project, lacks some points that directly make audience feel surprised, and does not express the speculative feature in a straightforward way. Consequently, the speculative design methodology is replaced by the critical design in the final version, consistent with speculative design from the perspective of raising users' awareness and making people to rethink. Nonetheless, it has more freedom and does not limit the scenarios in the future or virtual worlds.

### **3.3 Qualitative and quantitative analysis**

Data, especially telling stories of human activities, can be operated only through reading. Qualitative and quantitative analyses are research methods widely applied in social science research, especially anthropology. They are also impact tools in user experience design methodologies to help the design of digital products.

Qualitative and quantitative research tells story of how various themes are needed in the research related to each other and how features of speakers account for certain themes. There is qualitative analysis of qualitative data, qualitative analysis of quantitative data, and the quantitative analysis of qualitative data (Bernard, 2006, p. 452).

Quantitative data is defined as data values in counting or numerical form, where each data set has a unique value associated with it. It answers questions of “how many”, “how long”, which is easy to verify and evaluated using mathematical techniques. Quantitative data is collected through surveys, including Longitudinal Studies, conducts surveys from a specific period to another, and cross-sectional Studies from surveys at a particular time period across the target sample (“Quantitative Data”, 2022). Ways of surveys includes emails, social distribution, QRcode, API integration, face-to -face interviews, etc. As for the way to analyzed quantitative data, there are cross-tabulation. Trend analysis, conjoint analysis, SWOT, etc., and mean, median, mode, percentages are widely used in the calculation (“Quantitative Data”, 2022).

In the user experience design, methods simplifying human actions into data has limitations, leading to huge difference on product design. Quantitative analysis can answer the question of number, while qualitative analysis can respond to “what”, “how”, and “why” and demonstrate how complex human activities are. Thus, qualitative, and quantitative research is always combined to analyze the stage of user experience design (Reimann, 2017, pp. 26-43).

Qualitative and quantitative analyses are frequently used in user research. Questionnaires, interviews, and focus groups are common methodologies in user analysis, considered target-orientated design research. Questionnaires are used to select target users through the responses of users to several questions about their situations. Interviews and focus groups for users, clients, and stakeholders aim to collect user’s pain points and expectations, clients’ demand for the product, and different requirement from different stakeholders (Reimann, 2017, pp. 26-43). It also works with user observation and scenario investigation. Persona and user journey map are widely used as a qualitative tool to summarize users’ pain points by analyzing users’ feelings, actions, and scenarios, to prepare for the design of potential solutions and insights.

Although this thesis project is a critical design, I used many qualitative analyze in user experience design methods. I create questionnaires and interviews for users to prove their issue of alienation, collect their points; I make the stakeholder map to analyze the role of government, companies, and employees in the issue of involution. In the evaluation process, I make a virtual persona and user journey to test if the design meets it target raise user's awareness of the issue.

In addition to the user analysis in the thesis project, qualitative and quantitative analyses also plays an essential role in measuring and quantifying the level of alienation, which is a core function of the thesis project prototyping, and the result of quantifying effectively gives rise to user's reflection. User's working data is collected by the planner system in the app, and summation, mean, and percentage is used in the calculation process. Quantitative analysis is adopted to score the alienation, providing precise and comparable results for users of how severe their issues are, Qualitative analysis provides users with reports for introducing their alienation in five aspects, as well as meaningful insights.

## **Chapter 4: Design prototype iterations**

### **4.1 Prototype 1**

The first prototype is a system of mobile app and IoT (hand rings) and is used as a tool to manage people in the workplace. At that time, the speculative design is employed as the core design methodology of the project. The app aims to reveal the issues of overwork and labor exploitation, especially surveillance by technologies.

#### **Virtual world settings**

According to the speculative design methodology, two virtual word settings were created to exhibit different scenarios of employees using the system.

World settings:

Good scenario: people in a nice working environment, getting a work-life balance

Bad scenario: people in severe situation of exploitation, full of monitoring and long working hours

By comparing two contrast scenarios of people using the app and device, people would become aware of the issue of overwork and exploitation and began to think about ways to ease the issue.

### **Targeted audience and users**

The audience of the project could be anyone who does not realize how severe the issue of overwork and exploitation is. The research results suggest that young people working in technology companies in Shenzhen, China are a typical group of people who suffered a lot from overwork and workplace surveillance. Thus, they are selected to be the target users in the virtual worlds.

### **User analysis & stakeholder research**

Firstly, I performed a user analysis, inviting people in the real life who has satisfied the conditions of target users to join the questionnaire and interview. The results of the user analysis reveal that most people working in Chinese digital companies suffered from the issues of involution and labor alienation, experienced overwork, lack of interest, health problems caused by work, and lack of knowledge of how to protect their rights as employees. A persona of target users is established based on some specific features of interviewees. Stakeholder in the real world has been researched to explore the positions and roles of how government, companies, and employees in the working environment, as well as how they contribute to the issue of alienation and involution. These pain points, stakeholder map, and persona lay a foundation for setting up user settings in the virtual world.

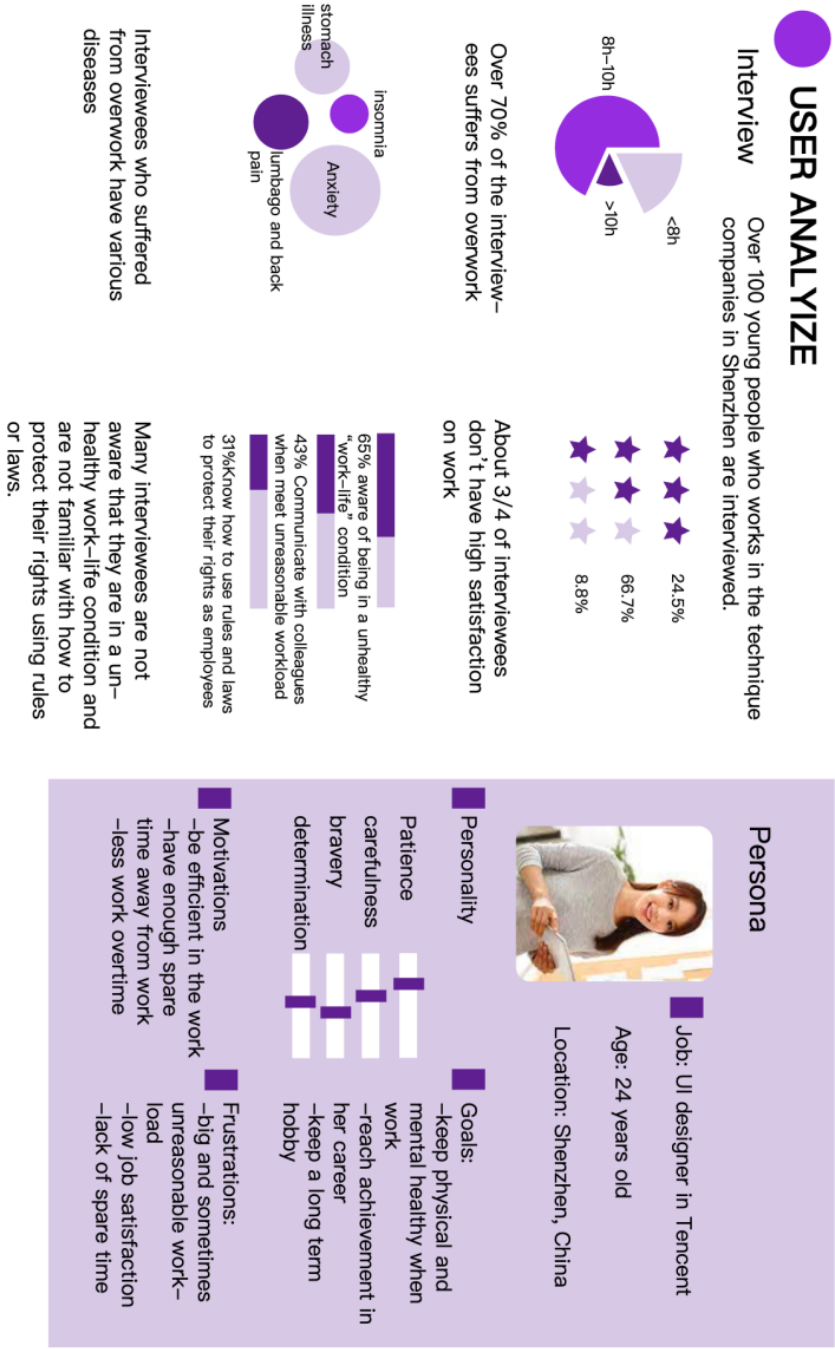
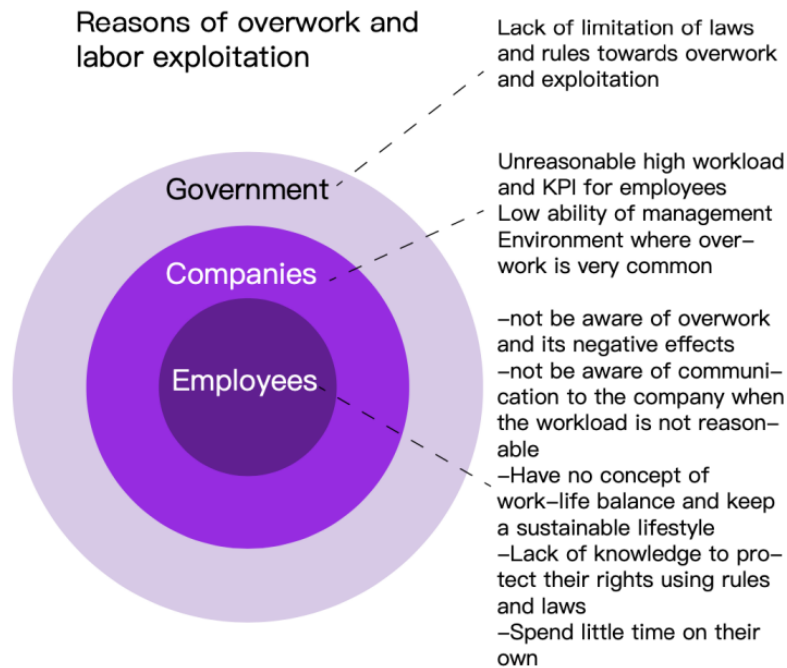


Figure 5: user analysis

## ● ISSUE STATEMENT & THEORY



*Figure 6: stakeholder map*

### **Pain points & requirements of employees and employers**

Good scenario: there would be better working environment for employees in the virtual scenario where the issue of exploitation is eased. The system is designed for the needs of employees. Here are some pain points of employees in the reality:

- Lack of spare time without work
- Health problem
- Stress
- Sedentariness
- Sense of comfortless

The design insight is to create a better working environment for employees.

Bad scenario: the bad scenario happens in a world where the power of capitalists is not limited. According to the theory of exploitation and alienation, capitalists would exploit employees as much as possible to gain more surplus value if they are not

restrained by rules or laws. In the bad scenario, employees would be considered tools, not human. The system should be designed for employers:

### **Requirements of users (capitalists)**

- Expand the working time as much as possible.
- Push employees to work during certain period.
- Limit them in the workplace.
- Punish employees when they are not concentrated on working.
- Monitoring employees on their working manifestation.
- Relate KPI or salary with employees' working manifestation.

The design insight is to obtain the most value without considering employees' rights.

### **Ideation:**

The design was inspired by current hand rings, health management apps, and office software, as well as science fiction and literature, such as anti-utopia and the Disciplinary power theory of Foucault.

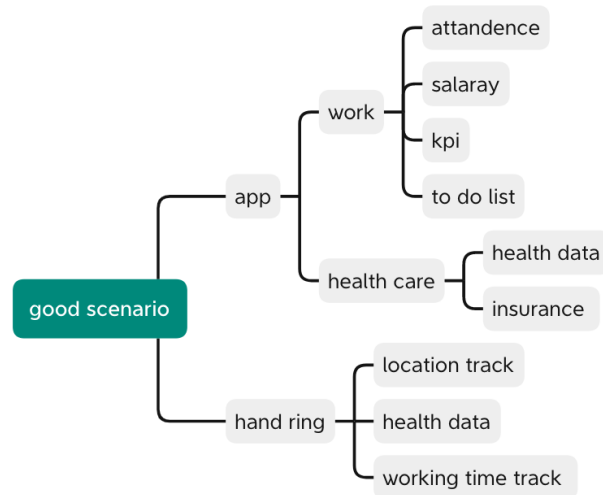
- Heartbeat monitoring
- Sedentary reminder
- Position tracking
- Health data tracking
- Treat employees as prisoners, control their movements
- Electric shock as punishment
- Consumerism

...

### **platform & technologies**

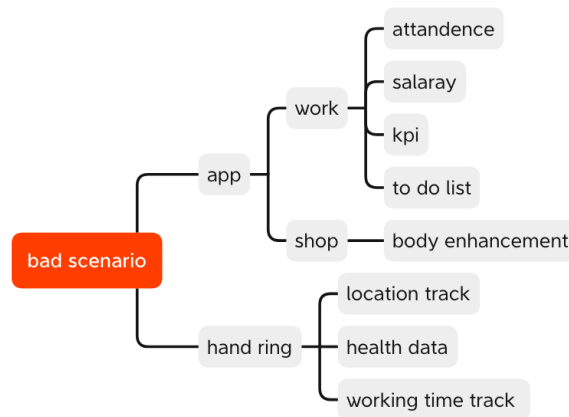
this system includes an app and a wearable device. The wearable device (hand ring) can track users' data, such as location, movement, heartbeat, and other health data, and transfer them to the mobile app.

## Wireframes



*Figure 7: wireframe of good scenarios*

This is the wireframe for the good scenarios with the following functions: 1) recording working information such as attendance, salary, and KPI; 2) encouraging them when they finish the target; 3) tracking health data of employees and reminding them of taking a rest when tired.



*Figure 8: wireframe of good scenarios*

This is the wireframes for the bad scenarios and has the following functions: 1) tracking location data of employees and reminding them when they are out of workplace; 2) tracking the working time to ensure that employees work for enough working hours every day; 3) recording working information such as attendance, salary, and KPI. Particularly, employees will get severe punishments when they are out of workplace, or do not work for enough time, or do not finish their tasks.

### **Evaluation and reflections**

This prototype can exhibit a dramatic effect of a comparison of employees under severe exploitation and alienation and employees with better working conditions, so as to invite audience to reflect on the exploitation and overwork issue in the reality. However, according to the feedback from others, employees will get “severe punishment” in the functions of bad scenarios, and this has great research ethical issue. Replacing the punishment function with deduction would be an alternative. Additionally, this speculative design project is effective in making people find the

issue of exploitation and alienation, while it lacks information that reminds people of how to address it.

## **4.2 Prototype 2**

In this version of prototype, the expected outcome of the project would be a mobile app of testing one's level of alienation and leading him/her to take actions to decrease the level of alienation when it is too high. This app aims to arise people's awareness that they are/are not alienated and encourage them to get rid of alienation and self-alienation.

### **Virtual world settings**

In this version of the prototype, there will be only one world of "bad scenarios", which indicates that the issue of alienation is quite severe in this world. Some specific scenarios could be extremely long working hours, compressed relaxing time for employees (2 hours a day), pills and body enhancement technology to help with employees for working longer, class divisions, and consumerism. A dramatic world will provide dramatic effects, inviting users and audience to reflect with speculative design methods.

### **Targeted audience and users**

The audience of the project could be the same as the previous version of prototype, namely, anyone who does not realize how severe the issue of overwork and exploitation is. The research results suggest that young people working in technology companies in Shenzhen, China are a typical group of people suffering a lot from overwork and workplace surveillance. Thus, they are selected to be the target users in the virtual worlds.

### **Pain points & requirements of employees and employers**

Here are some pain points of employees in the "bad scenario":

- Lack of spare time without work
- Health problem

- Stress
- Sedentariness
- Sense of comfortless

The design insight is to firstly evaluate employees of their level of alienation and encourage them to take various actions to reduce this level in the app and handle the issue of alienation in the real life.

### Ideation:

This version of prototype was inspired by games, questionnaires, and health tracking apps. It possesses raking and scoring systems and reward and punishment systems to motivate users.

### platform & technologies

This system includes a mobile app.

### Functions



*Figure 9: prototype 2 wireframe*

There are three parts of the project:

**Ranking system of level of alienation:** it tests one's level of alienation by making users fill out questionnaires of working time, working intensity, level of satisfaction, and any other questions related to the level of alienation in work. The questionnaires should be taken once a day. I have guaranteed no privacy concerns of users.

**Fighting with the overwork:** it is a stimulating feedback system of overwork issue.

When the users feel like they suffered from overwork, firstly, they can choose to report the issue to the company; if the issue is severe, they can report it to the union or even take the labor arbitration. Afterward, the level of alienation of the user will decrease. With a stimulating system, this app aims to encourage users to initiatively take the actions to protect their rights in the reality.

**Spending time on oneself:** it motivates users to spend time on themselves, get away with self-alienation, and post the related images and texts in the community. This could also lower the level of alienation. The social media would help to easily create a trend of “spending time on oneself” for users.

This app will test one’s level of alienation and encourage him/her to take actions to ease their issue of alienation and self-alienation by experiencing “Fighting with the overwork” and “Spending time on oneself”.

From the perspective of technology, this app will be established on the iOS platform. I will focus on the interactive prototyping making and try to program the app as much as I can.

## **Low-Fi interfaces**

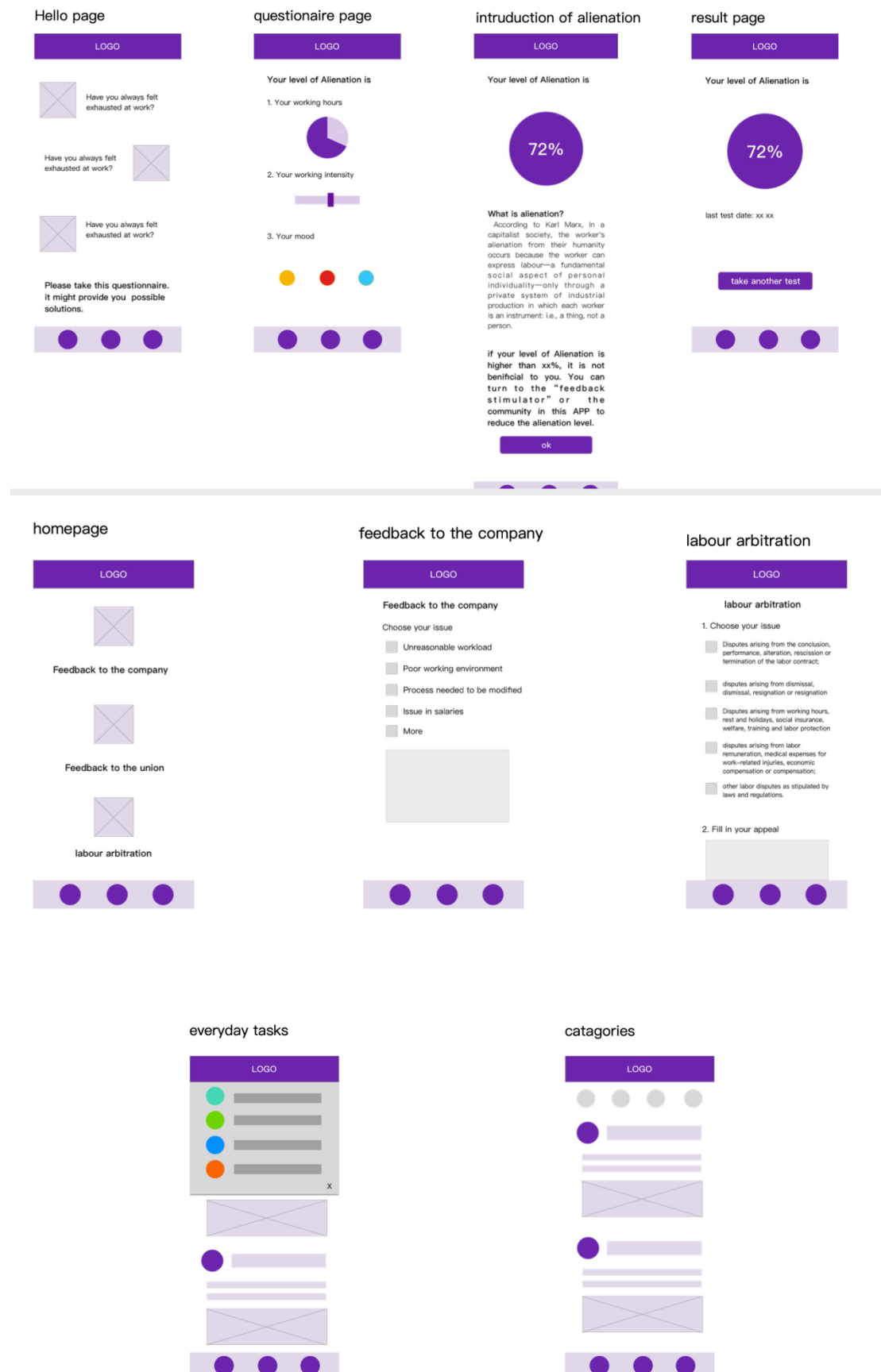


Figure 10: low-fi version of prototypes 2

## **Evaluation and reflections**

This version of prototype uses speculation design methods to create a virtual world with severe issue of alienation. It has a dramatic influence on users when their levels of alienation have been quantified. Moreover, it provides users with possible solutions and encourages them to take the actions, learn about how to use law to protect themselves, share themselves on the community. However, there are still problems. Since the whole app is based on a game-like scoring system, would users' actions in the app really influence their actions in the real life and ease the issue of alienation? Besides, the way it uses speculative design to tell stories is not straight forward enough and lacks points surprising the users and audience immediately. Thus, there should be more modifications afterward.

### **4.3 Final version of prototype**

The final version of prototype is a mobile app assisting users in quantifying their level of alienation by recording their working time, intensity, and other characteristics. The target of the app is to raise the awareness of employees of the issue of alienation at work and provide them with some advice of getting rid of it. Pages of the report of alienation demonstrate users' alienation score, abstract of five aspects of alienation, and diagrams of data in the weekly view and monthly view. Then, the suggested actions against alienation are presented, and users are encouraged to record what they do following these actions in the "Journal" page and share information in a community. These actions of users will influence the score of alienation, making them motivated and be willing to make real changes in the real life. Concerning the design methodology, this version of the prototype focuses more on critical design rather than speculative design. This prototype is designed for reality; however, it would not be grounded on App stores and be used by people in the real world.

## **Targeted audience and users**

The target users are the same group of people as previous prototype versions - “digital labors” in China, especially some people that are not aware of the alienation issue of themselves, or who realize it but do not know how to handle it.

### **Pain points & requirements of users**

Since there are no virtual world settings in this prototype version, all the design is based on the real-world users’ pain points: suffering from alienation both physically and mentally. The solution here is to quantify their level of alienation by tracking their working position, inform users with the score, and offer users with opportunities to get away with it.

### **Ideation**

This version of prototype is inspired by some popular health tracking apps and self-management apps, which have a complete system of tracking users’ personal information or making them to record certain data and then generating this data into reports. The point reward system and community also contribute to recognition and communication of users.

### **Low-fi prototypes**



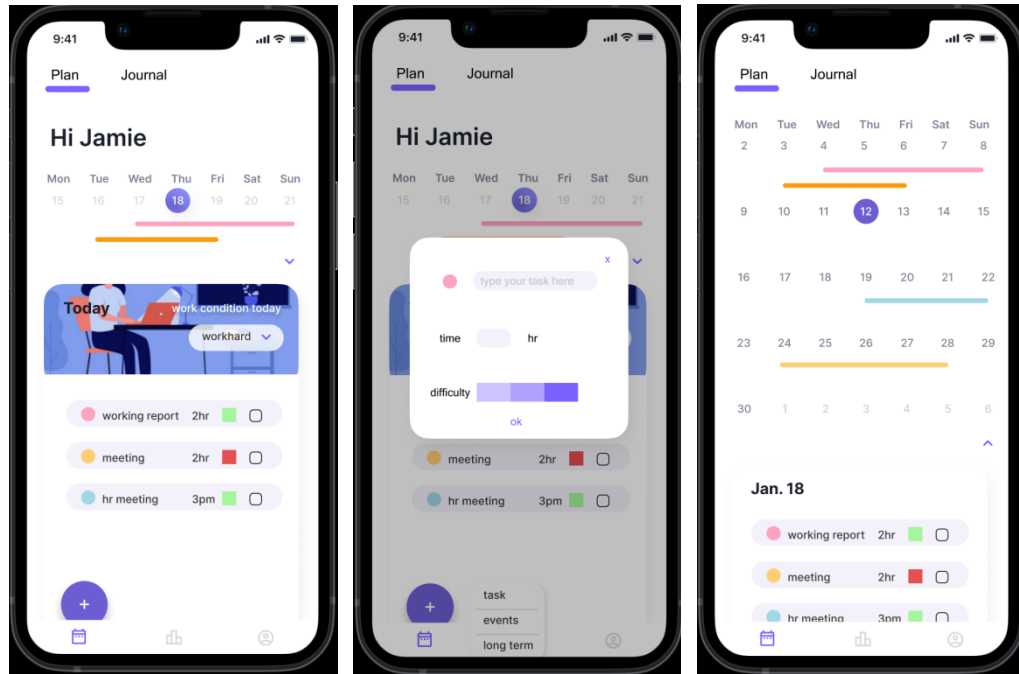
Figure 11: lo-fi version of final prototype

## Functions

### Planner

This part enables users to add any tasks or events at work and set the time and difficulty of the task/event. They can add them on “today” or any other day, choosing from the calendar on the head of the interface. Besides, every time the user finishes one task, they can hit on the checkbox and review this task, choosing different levels

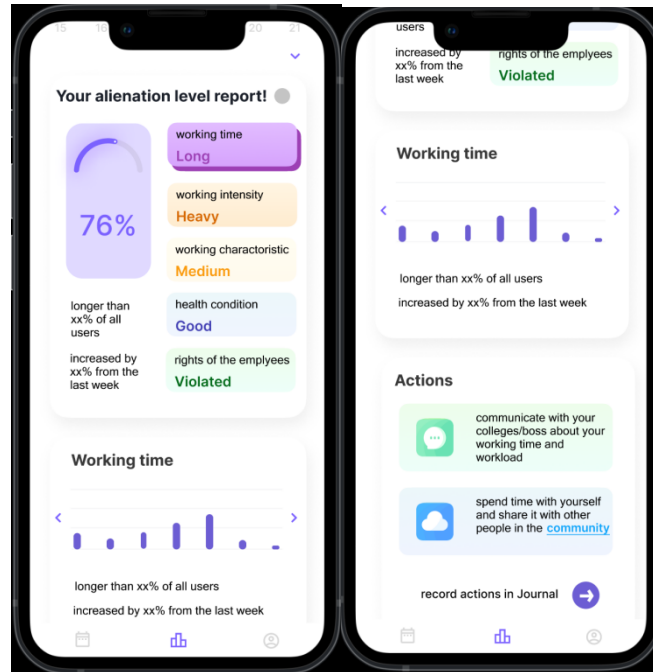
of working characteristics such as satisfaction and creativity. This not only helps employees manage their projects but also acts as the database for calculating the alienation score.



*Figure 12: the planner system*

## Scoring

This part enables users to see the score every week they record their working plans. The score can tell users a precise level of their situations and conditions, affecting their affect and emotion. Abstract of five aspects of alienation and diagrams of data in the weekly view and monthly view allows users to learn more about how their working features, such as working time and intensity, are related to their score. Suggested actions and reference below teach help users to address alienation based on their own issues and problem and deepen their understanding of the concept of alienation. The journal page provides a space for users to record what they do following these suggested actions.



*Figure 13: the scoring page*

## **Community**

There is a community where users are encouraged to share their experience spending time on themselves. Additionally, they are also welcomed to participate in different kinds of topics related to getting rid of alienation. Posting information in the community and recoding actions in the journal will influence the score of alienation, making them motivated and be willing to make real changes in the real life.

## **Evaluation and reflections**

Since the final version of prototype is a critical design project, I make a demo that consists of some of the important functions and invite people to give some feedbacks to evaluate whether the prototype has achieved the targets. In the demos, users can add tasks and events within a week, review it once they finish the task, and transfer the data to a score.

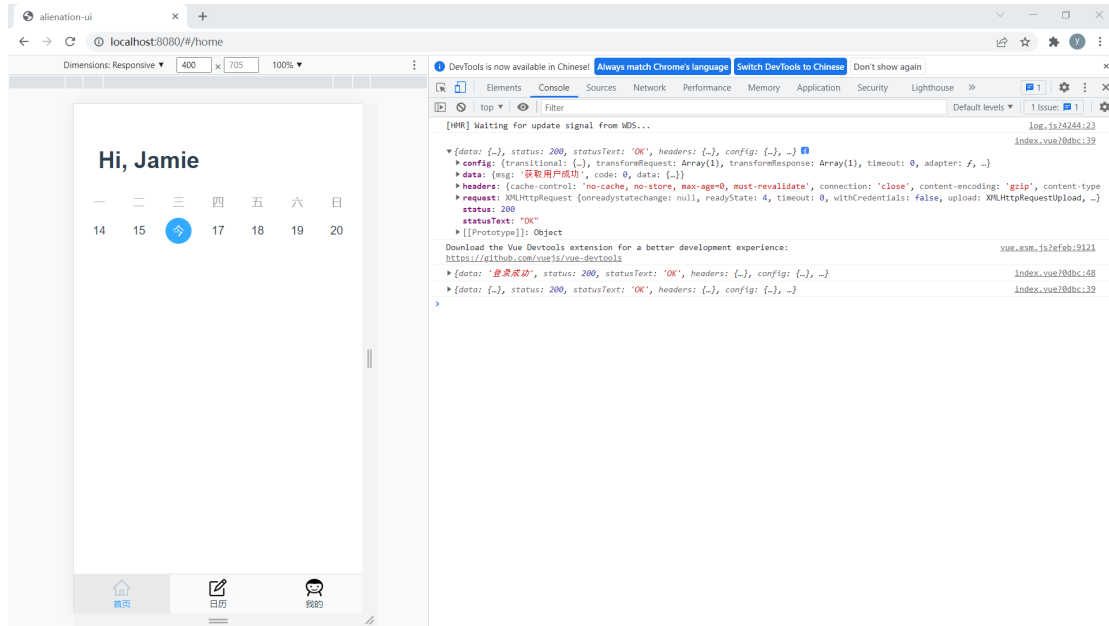


Figure 14: demo programming

After finishing the demo, I sent it to three people. A few questions were asked before they used the demo:

1. Have you ever felt under involution?
2. Are you familiar with the concept of alienation?

Here are their answers:

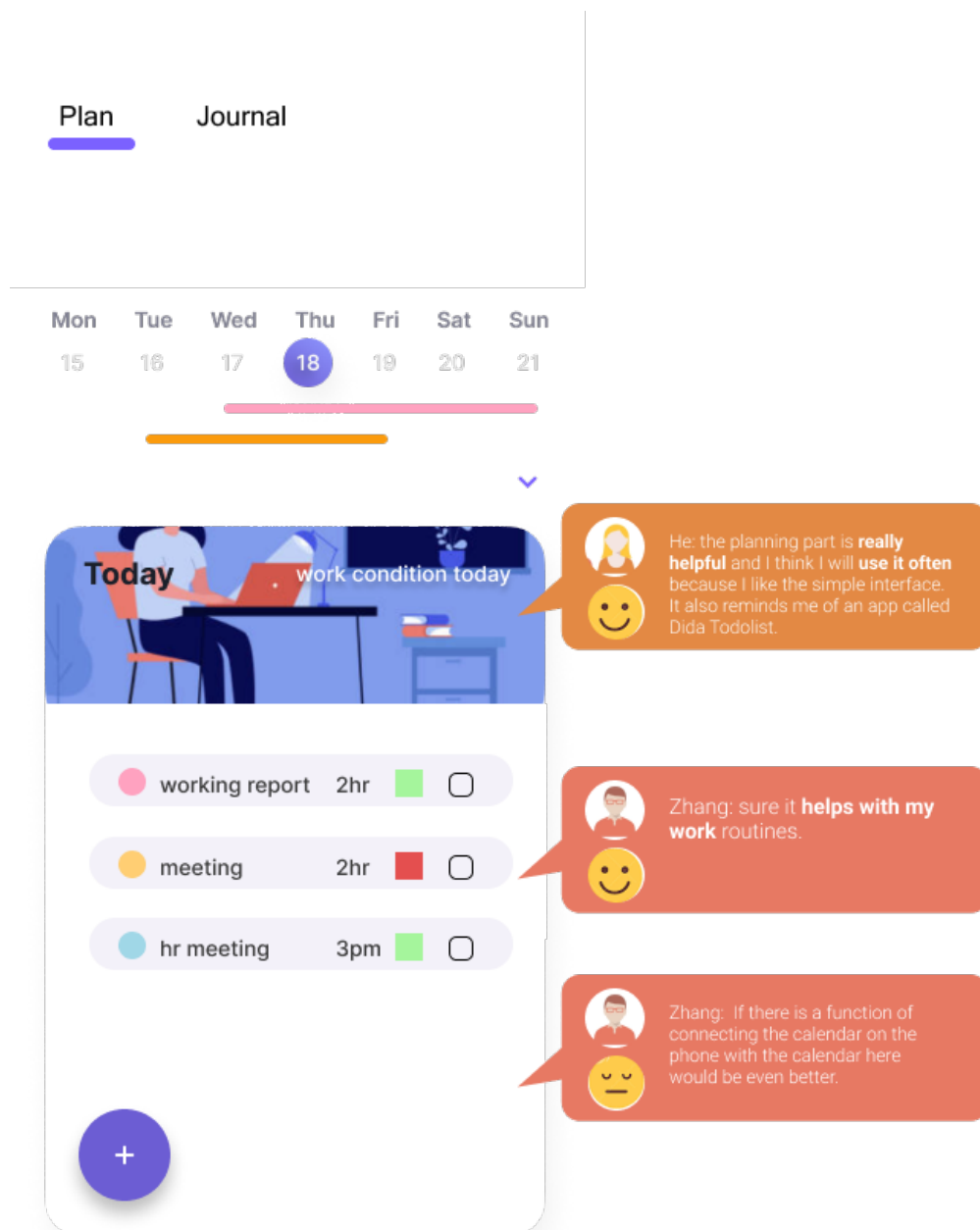


Figure 15: answers from users before using the app

When they used the demo, I asked them other questions:

1. How do you like the planner system? Do you feel that it is helpful?
2. How do you feel when you see the score? Are you surprised?
3. Any thoughts about the suggested actions and the reward system?

Additionally, I encouraged them to provide feedbacks about any functions in the app.

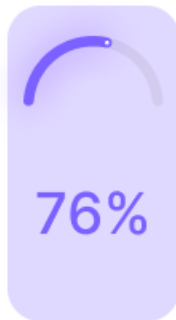


9:41



Mon Tue Wed Thu Fri Sat Sun  
15 16 17 18 19 20 21

## Your alienation level report!



longer than  
xx% of all  
users

increased by  
xx% from the  
last week

working time

**Long**

working intensity

**Heavy**

working characteristic

**Medium**

health condition

**Good**

rights of the employees

**Violated**



Chen: the scoring system is great, and the button for instructions, which lead me to a pop up window of **an explanation for alienation is really helpful** because I am not so familiar with the concept.



He: I will be **shocked by the score** if it is really low. And I will start to think about **what to do to reduce it**.



He: People may feel more anxiety when they see scores.



Zhang: this score may **remind me of the situation of myself**. I suppose for most of people, this score **can help them to realize how alienated they are** and try to do something.



*Figure16: feedbacks from users after using the app*

The feedbacks from the users participating in the test verify that the app has achieved the goal of raising people's awareness of the issue of involution and alienation, especially those who put themselves alienated. The planner system not only well performs as a way to collect users' working information but also keeps its original function to manage projects at work. The score made everyone tested shocked. Then, they began to rethink and review their working condition to see whether there is anything that can be improved. Besides, the suggested actions and the reward system were considered relatively helpful by the users tested. They also offered many opinions and suggestions about the apps. One mentioned that tracking people's working features by planner is still quite objective, and it would be better if synchronizing the calendar with the original one in user's mobile phone. Another

believed that this app can only remind people who suffered from the involution and wanted to change while having little help to those who know they are under involution and alienation but rely on this unhealthy and problematic system to get what they want. This final version of prototype is not perfect and has a lot of limitations. It cannot meet everyone's needs due to some reasons such as privacy concerns or reminding all the people who are alienated. Nevertheless, it has already reached the goal of "making users find the problem" in the thesis project. The feedbacks from users are still valuable in developing alternative versions of the project and provide inspiration to create a solution for tackling the issue in a possible future.

To better show the achievement the app made at the perspective of critical design, I create two virtual personas and user journeys to show how people use the app in a virtual world, and how they gradually change their mind about the issue of involution and alienation. Persona shows two different and typical type of digital workers in China: one has some experience in work, suffered from overwork and involution but haven't aware of the issue, have great ambitious in the career, and another is younger, have less experience in work, usually accept unreasonable workload from others, familiar with the involution but don't know how to deal with.

### **Persona 1**

Name: Hefeng Xie

Age: 30 years old

Position: Operation Executive

#### **Introduction:**

Hefeng is a financial manager in a small e-commercial company in Shanghai. As the Operation Executive of the company, she is very experienced, responsible, ambitious and hard-working. working in the intensive e-commerce industry, Hefeng usually

works overtime, and she is quite used to it. However, as she gets old, health problems gradually appear. Also, recently she began to feel that she met the work bottleneck, feeling tired and confused. She is not familiar with the concept of alienation, though she suffered from it.

Pain points:

- health problems
- can't find the work-life balance
- confused about life

## **Persona 2**

Name: Ming Zhang

Age: 24 years old

Position: Software engineer

Introduction:

Ming is a junior software engineer, works in a large technical company in Shenzhen. The company is famous for long working time and heavy workload, especially for engineers. Ming is tired of the intensive work, and he feels that some of the work is unreasonable and unnecessary. Besides, he is a junior engineer, sometimes he doesn't have any rights of decision-making, but only accept works from other, therefore he kind of lacks the meaning of work because it is all depend on other people. He thinks that there might be some problems in management in the company, but he doesn't know how to communicate. Ming cares about social issue and is aware of involution and alienation, but he doesn't know how to deal with it.

Pain points:

- Long working time and unreasonably high workload
- Lack of communication to colleges and bosses
- Meaninglessness in work

## User journey

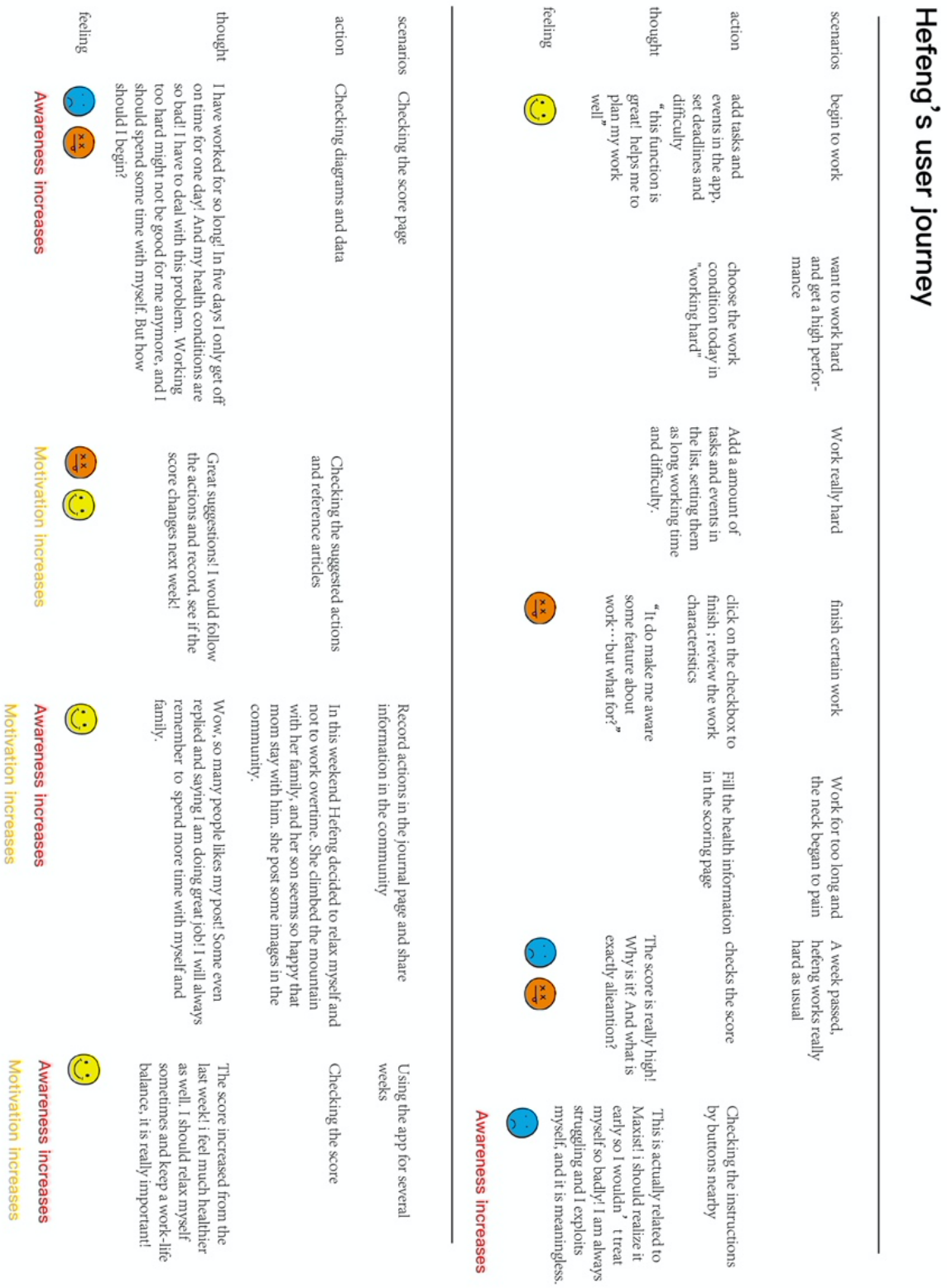


Figure 17: virtual user journey 1

# Ming's user journey

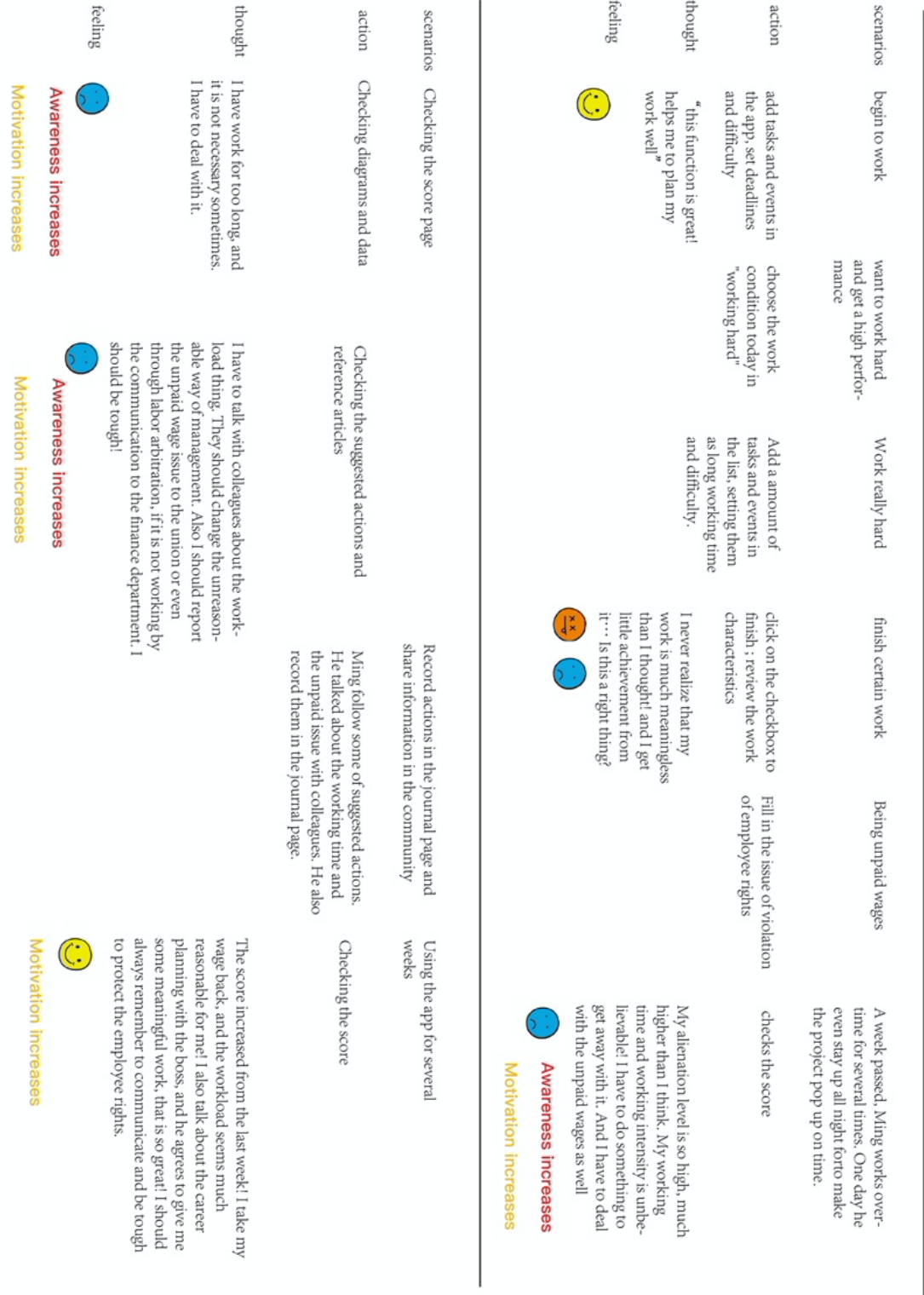


Figure 18: virtual user journey 2

In these two user journeys, we can see that in different scenarios of working, two users have interesting thoughts and experiences emotion changes, and in some dominant scenarios, the level of awareness of the issue and motivation of changing the situation increases, shown in their emotion and thoughts. For instance, they both felt shocked about the score, saying “why it is so high”, and it becomes the first stage of their cognition of the alienation condition. When seeing the abstract of five categories of alienation, they began to look back to their work, find that the health problem and unpaid wages are severe issue needed to be solved. They also figure out how to solve issues by seeing suggested actions, knowing the importance of communication and work-life balance. Finally, they began to take actions by recording and sharing in the community, and the positive feedback – reduce of the score make them more motivated and encourage them to build the system of against the involution and alienation. These two user journey shows that the app have achieved the target of the cognition of the issue of involution and alienation, about what is it, how severe is on myself and how to deal with it.

## **Chapter 4: Findings and conclusion**

Chinese digital laborers have suffered from overwork, involution, and labor alienation in recent years, especially in the workplace. Involution stands for the unnecessary competition within employees in China because of the intensive market and the simplex social value. Involution and alienation have similar manifestations, such as expanding working time and workload and sense of meaninglessness. The theory of exploitation can explain one of the most critical reasons of involution and exploitation, that is, seizing employees’ surplus value.

After the alterations of several prototypes, the final prototype of the thesis project can answer the research questions of “what is involution and alienation” and “how to handle it in a mobile app using critical design”. The first two prototypes, though

abandoned, are pretty helpful in the developing process and demonstrate their own values. These two prototypes mainly adopt the speculative design methodology, and several speculative design projects are analyzed as great inspiration.

The first prototype creates a special storytelling of two different virtual worlds: one with severe issue of alienation and the other without it. It can exhibit a striking contrast and bring a dramatic effect to the audience. The virtual world in the “bad scenario” can especially present scenes similar to those in cyberpunk fiction or movies, or science fiction movies such as *the Black Mirror*, which describe a world with Hi-Tech and low life, in which people almost lose their rights as human-being. Although this version of prototype has been abandoned, the narrative of comparison and virtual world setting based on speculative design methods can be inspiring.

The second prototype creates a way to measure or quantify the level of alienation. This has been the most imperative and centered function in the final version. It is a good reference and has been modified to the planner system in the final version, though the way of quantifying the level of alienation by inviting users to fill questionnaires is too subjective and not precise enough. The reward system, including the stimulating system that encourages users to feedback their issues of employees’ rights and the community of sharing experience, is reserved to the final version.

The final version turns into using critical design methods after realizing the limitation of speculative design in this project, making the design straighter forward. Additionally, the designs methods of quantify analysis and qualify analysis are used. Like earlier version, the final version focuses on the perspective of user’s cognition of the issue, and the outcome would be an critical mobile app, not a traditional commercial app. The app in this version refers to some popular health tracking and self-management apps as inspirations. In this final prototype, the function of quantifying the level of alienation is reserved from the last version. However, the data of users’ working features in this version are collected by a planner system where users can add tasks and events at any date and review it when finished. This is more

objective and precise. Besides, users can add their health issues and issue of employee rights in the scoring page, making the quantification more comprehensive. The working features, such as working time, working intensity, and characteristics are collected based on the literature of manifestation of alienation. On the scoring page, the score and diagrams in five categories can demonstrate an overall abstract of user's level of alienation in both quantify and qualify ways. Furthermore, the suggested actions are concluded from literature of the solutions of alienation. The reward system, involving reducing the alienation score by recoding actions and sharing information in the community, indicates the point and reward system in many social media apps. According to the user feedback in the evaluation process, the planner system is helpful in their work, and the scoring and reports of alienation effectively make them realize how severe the issue is in their life. Moreover, suggested actions and the reward system are useful in providing advise on how to ease the problem and motivating them to take actions and communicate with others. Overall, the final version of the prototype has explained the research questions and achieved the thesis goal.

### **Future work**

The issue of overwork and involution is a wicked problem for Chinese digital labors, and though my thesis project can help with reminding people about the issue, there is still a lot of work can be done in the project. These projects have many limitations: the target users are limited to digital labors in China, and a big number of blue-collar works are not included; the app aims to measure the alienation level in the workplace, while alienation is also shown in the communication of people, in consumerism, in daily life, etc. Therefore, in the future work of the project, hopefully the calculation of alienation can adopt different kinds of people, and the scope of users can be expended. Besides, more categories of events can be recorded as the data for scoring, such as daily to-do list, shopping list, emotions, etc., and the scoring and report can show the alienation in every aspect of people's life. So that the app can strike the chord of different people and raise the awareness of every class and industry.

Secondly, there is much room for the community to expend. Currently the community is basically considered as a tool for people to reduce the score of alienation; I would like to add more interesting contents in the community, such as topics, bbs, or even ranking list of people with low level of alienation, and all these works as a whole system to increase the motivation of users as well as communication.

Additionally, because I don't have a background in coding, I just programed some dominant functions such as the planner system and scoring as the demo for usability test. I wish I could code the whole app to make sure everyone can use every functions. Since the project is critical and the app is a not commercial app, I can put the version fully programmed in exhibitions, galleries or even internet platform to spread and strike the discussion within audience. Audience can be experiencing the demo, reflect on themselves about the issue, and influence other people. As an increasing number of people changing their minds, there would be an ideological trend against involution. I believe hopefully it can lead to the revolution of legislation of government and management of companies and easing the issue of involution and alienation of employees.

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