

Healthfitness Interface

Prototyping by Zuhua Liu (Clive)

by Zuhua Liu

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Health/fitness Interface Prototyping



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Introduction

The first idea of pedometer [1] was envisioned by Leonard Vinci of Italy, but the earliest pedometer was in Da Vinci time after 150 years, was made in Germany (figure 1) in 1667. In the middle ages and modern times, a pedometer was not widely used, because people did not know its purpose.



Figure 1 first pedometer in Germany

With the development of the mobile Internet and the continuous improvement of the degree of social civilization, the smart phone is on the stage of history, and people's life concept is also changing. Sports and leisure as a new era of leisure concept, has gradually become a fashion of modern life, showing a strong social demand. It is emphasized to relax in sports and physical exercise [2], therefore walking is undoubtedly the best method, simple and practical way whenever and wherever possible. If there could be a good partner and a perfect combination of walking, the steps that we have walked will show our body state. The best partner is a pedometer. Many people regard fitness as a compulsory course every day. In many fitness methods, walking and running have become their most effective and simplest way of exercise.

This report will design a walking prototype which is a daily exercise schedule monitor, can encourage people to challenge themselves, enhance physical fitness and help lose weight. This pedometer will also has a measurement of running time, the number of steps and the variation of weight. Pedometer function can be used to analyze the health status of the human body according to how much exercise.

Task analysis of target user group's requirement

This part will analyze this design's target user group's requirement [3]. This survey was conducted through offline questionnaires. According to user scenarios, a questionnaire was designed to get users' basic needs for running APP and further user experience. This questionnaire will also analyze what functions users need and why do they need these functions. Because everyone need to run or walk and the user's group for this design is everyone, this questionnaire do not distinguish age and occupations.

The following questions in questionnaire (APPENDIX) are used to figure out the user's requirement and collect their needs. This survey have 15 people involved and record their answer for these questions. There are these questions:

1. Do you love walk or run?
2. Do you often use pedometer?
3. Do you listen music when you walk?
4. Do you think the function of share is vital?
5. Do you care the speed when you walk?
6. Do you think statistical analysis is important?
7. Do you care walking distance, walking time, and walking steps?
8. Do you care share and aim management?
9. Do you think comments and points of praise for shared walking record is essential?

After this survey, this table (table 1) could be concluded. The requirements prioritization [4] can be divided three classes, high, middle and low. High represent requirements that the current version must develop. Middle represent requirements that the current version can develop. Low represent requirements for subsequent version development or waiting for discussion.

Table 1 user's requirement summary table

number	Requirements description	requirements prioritization
1	walking distance, walking time, walking steps	high
2	Share and aim management functions	high
3	Walking step statistical analysis	high
4	Music when walking	middle
5	Comments and points of praise for shared walking record	middle
6	The speed of running and walking	low

The main users of running APP are runners who like to run. They have certain requirements for running quality, pay attention to running health, understand and analyze running data, and enjoy sharing their sports results.

The survey identified that functions of walking distance, walking time, walking steps, Share and aim management and walking step statistical analysis are necessary for this APP to add. Some people also care the functions of music when they are walking or running and comments and points of praise for shared walking record. Only few people think that showing the speed of running and walking is vital. Based on this survey, this prototype merge these views into the design of interface.

There are also more points for task analysis except above. For example:

1. Where are the App performed? Anywhere can run or walk.
2. How can users communicate with others? By using the share function
3. What happens when things go wrong? Users can send feedbacks to developer.
4. What's the relationship between user & data? One person have their own data and they can also share it by functions of sharing.

Walking Paper prototype

To design paper prototype, there are some subtasks for this design and below is the structure for walking paper prototype (figure 2).

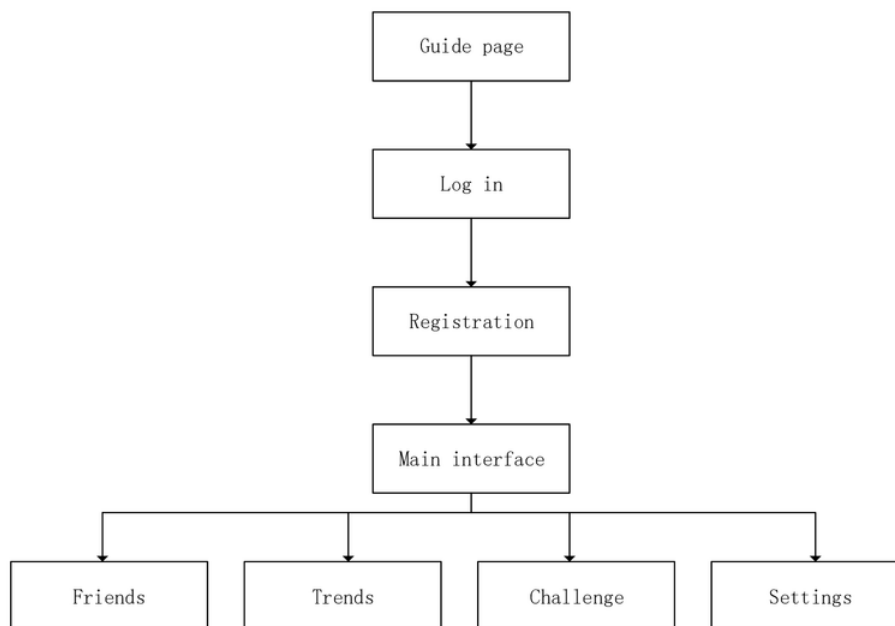


Figure 2 structure of walking prototype

According to the task analysis and structure of walking prototype. An iphone 6 is chosen for this paper prototype. First, an overall picture is designed, and then complete the overall figure inside the various parts Below is the first hand draft.

1. Figure 3- Overall picture for prototype
2. Figure 4- guide and login interface
3. Figure 5- profile setting and main interface
4. Figure 6- settings interface
5. Figure 7- goal, weight and challenge interface
6. Figure 8- friends interface (1)

7. Figure 9- friends interface (2)
8. Figure 10- trends interface (1)
9. Figure 11- trends interface (2)

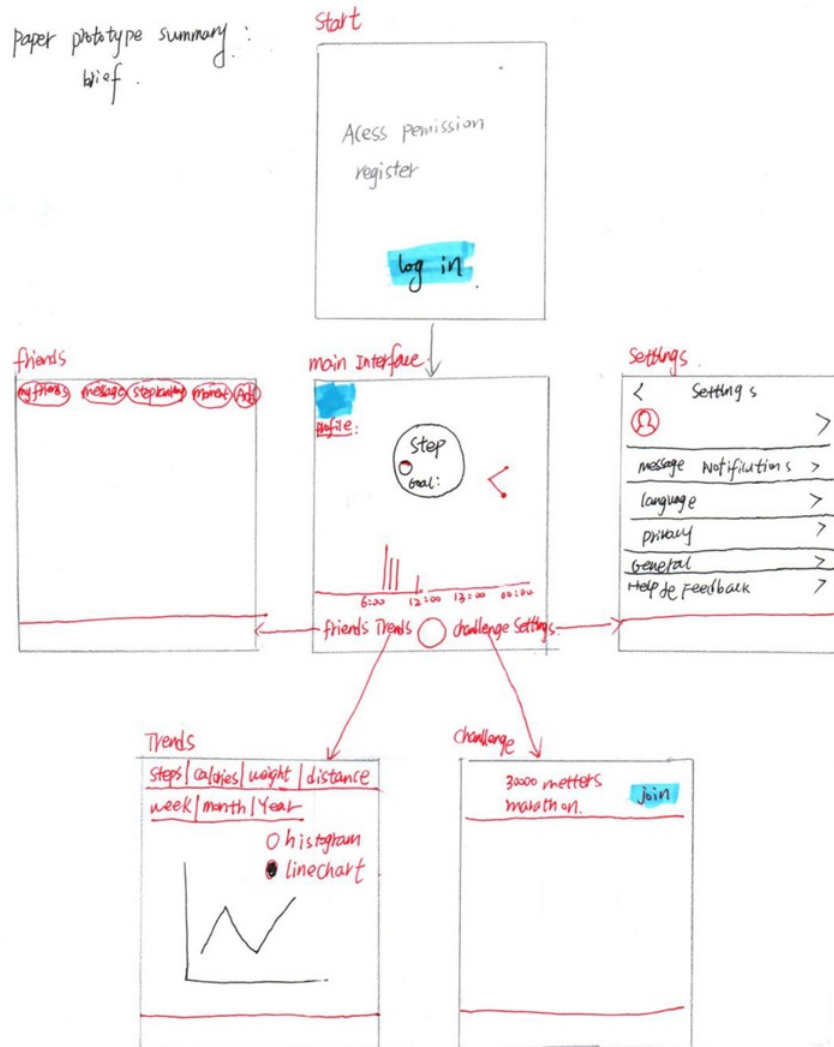


Figure 3 overall picture for prototype

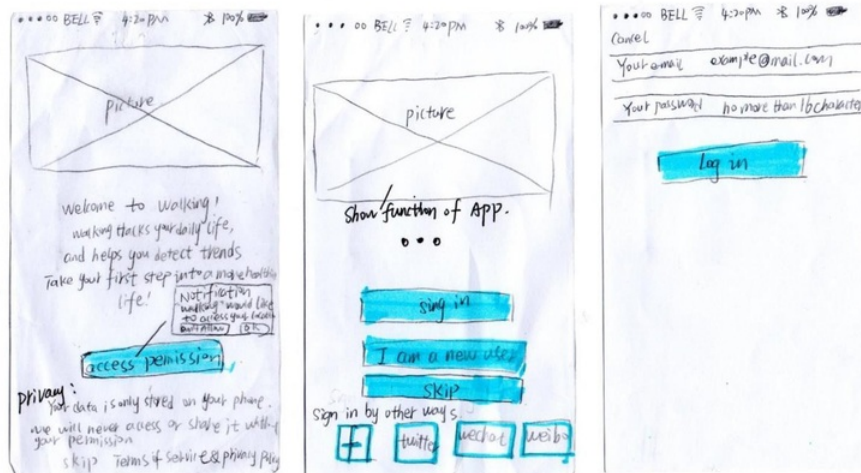


Figure 4 guide and login interface

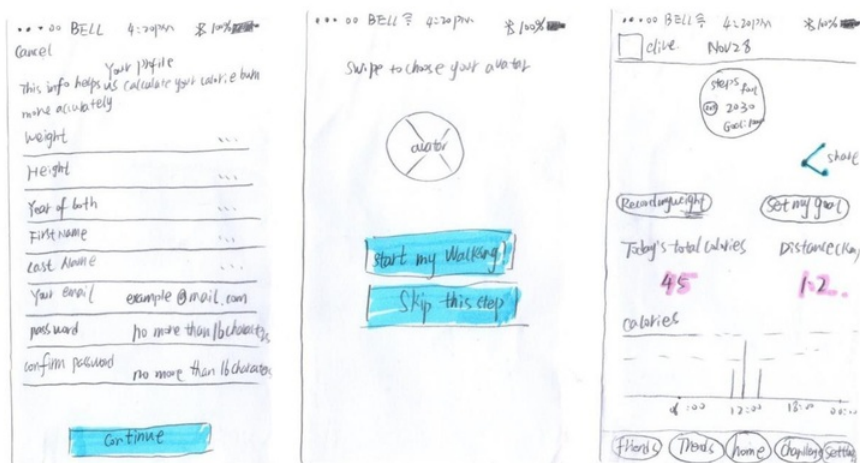


Figure 5 profile setting and main interface

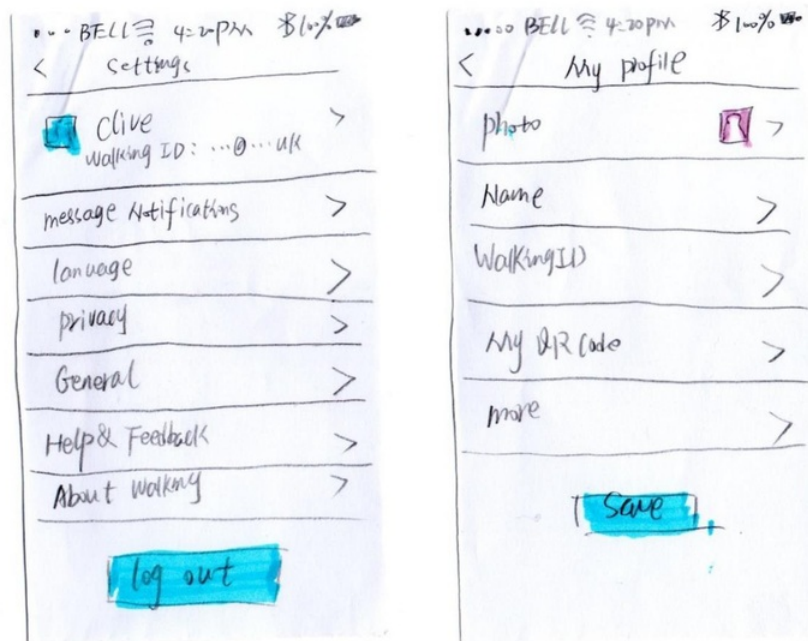


Figure 6 settings interface



Figure 7 goal, weight and challenge interface

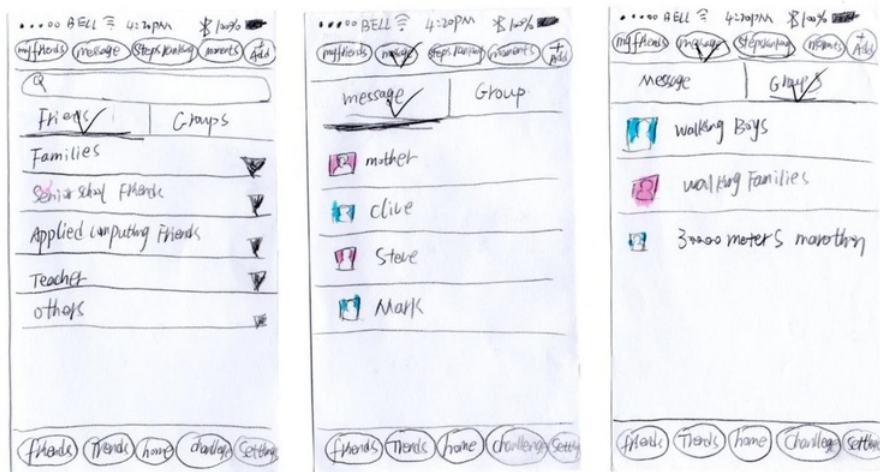


Figure 8 friends interface (1)

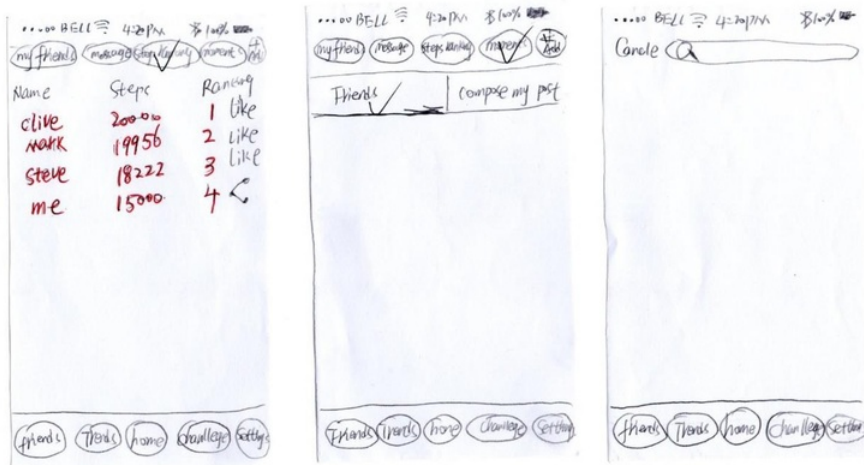


Figure 9 friends interface (2)

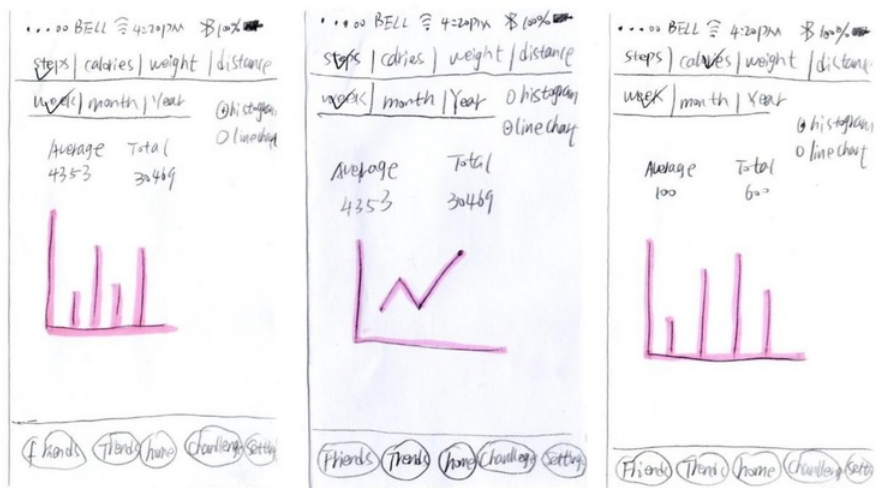


Figure 10 trends interface (1)

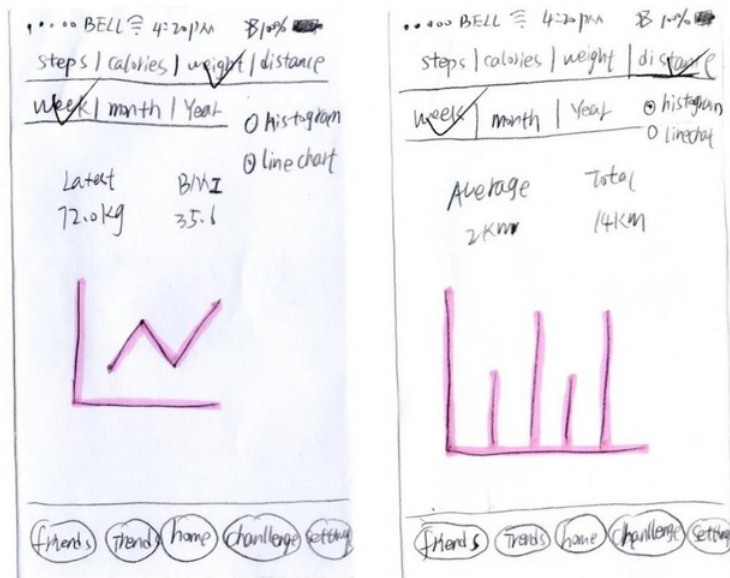


Figure 11 trends interface (2)

Human factor of prototype

It is important to take human factor into account when designing a prototype, including visual perception, human memory and human reasoning, interface metaphors and affordance.

As we all know, the human eye [5] can feel in the spectral range. Different wavelengths of light give different color experience. Different light intensity and different light intensity distribution stimulate the human eye. Human brain will produce different light intensity, color, Shape and other information. Visual information obtained by the human eye needs to be processed through visual pathways and by parts of the brain to show what we see. The basic visual information includes: brightness, shape, movement, color, depth perception, etc. of which brightness is the most basic visual information, because if there is no brightness, then there is no shape, movement, color and other visual perception.

For this design, human vision is considered from the following three points due to the design of a sports application.

1. The whole model with the background of gray adjustment makes people do not have too much stimulation and visual fatigue in sports.
2. The button is all blue, and the other colors try to be used in combination with the gray.
3. Put important controls in a prominent place

The human brain is not a computer, and it is necessary to consider the limits of the

human brain [6] to handle information when designing the interface. Human short-term memory is extremely unstable and limited, and 24 hours of memory is in the forgetting rate of 25%. So it is easier for users to browse information than to remember. The amount of information in a picture can not be too complex and huge. For this design, each interface has a small amount of information, a clear picture, and no burden on the memory of the person.

Human reasoning [7] is another important factor needed to consider. Gibson think that people can get information almost automatically. As far as human reasoning, internal representations is also vital. In terms of this design, the interface design remains highly consistent, and users can learn the commonness without having to learn too much.

Metaphor [8] let us understand complex things more easily and can make it vivid and make it more specific. Designer need to use it correctly so that users can know its meaning when seeing it in their first eye. There are also a lot of metaphors included in this prototype. Such as calendar (figure 12), share (figure 13), main button (figure 14) and footprints which represent steps (figure 15).

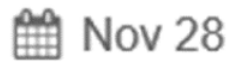


Figure 12 metaphor in calendar



Figure 13 metaphor in sharing



Figure 14 metaphor in main button



Figure 15 metaphor in footprints

Affordance [9] is also important in this design. Affordance refers to what an object is actually used for, or what it is considered to have. That is to say, in a certain aspect of an item, there is a clear knowledge of how to use it. There is a clear affordance feature in this design. For user, every button will tell them what the next step is. Users need to click button to login, set goal and so on.

Review of walking paper prototype

Walking prototype was review by Essam. Below is his suggestions (figure 16).

How the App is used

Guide page- introduce the functions of this walking application.

Login interface- Users can choose different ways to log in, for example, Facebook, Twitter and WeChat.

Registration interface- Users who first use this application need to write a form about their personal information and they can also choose to skip.

Main interface -show all module of this app. User can choose something to set, share and do exercises.

Goal management interface- the goal of setting and reminding will encourage people to walk or run.

Challenge interface- there are some challenging activities.

Trends interface-to know their health state.

Friends interface-to contact their friends and share their experience.

Setting interface- change their profiles and some basic settings.

On the login interface, I would suggest removing the functions of skipping. Because everyone would like skip it, no one will register. Some people may like listening music when they walk or run and weather is also an important aspect for them. You can also add more functions like music and weather which will be a very good idea.

What is more, I would suggest that you can draw more images and give them different colors. For setting, more icons can be included.

App is simplistic and easy to use and navigate. Screen are laid out well and not overly cluttered. As all screens follow the same layout style, this will aid the user's usage of the app. The application is well thought and not complicated which will give user a large variety of options. Good use of metaphors within the app i.e. the use of steps for counting steps.

Figure 16 paper prototype reviewed by Essam

Review of Class member paper prototype

This session will introduce the prototype created by Essam. Some suggestions also were given below. This is the first hand draft for him.

How to use the App

1. Open the App and enter into the home screen after the guide page.
2. Select different options such as money save, achievement, number of cigarettes you stop, extra tips, how long you stop smoking, rate of health improvement, settings and about App.
3. Money save- Users can see how much money they have saved after stopping smoking, which will have a good impact on their attitude towards stopping smoking.
4. Achievement, number of cigarettes and how long you stop smoking- Users can see their achievement here.
5. Extra tips- In terms of the state of users, this app will give some advice to user, which will make users feel more comfortable and help them stop smoking more quickly.
6. Rate of health improvement- Users will see different percentage of improvement for their body.
7. Settings- Users can set stop smoking date, time you stop smoking, number of cigarettes and cost of one cigarettes,
8. About the App- Users can see the introductions about the app and they can also share the App to users.

This is a very simplistic App. Interface design layout t is reasonable, at a glance. The user can quickly know its function by its obvious main interface. There are also a lot of images which will navigate the directions of using this App for people.

Some metaphors are also reasonable. For example, every options have a images telling people its functions and users may do not need to see the words into images. Such as calendar and money save. There also some good example for affordance on the main interface, every button will give people direction for using this App.

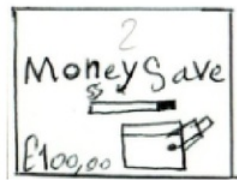


Figure 17 metaphor in money save

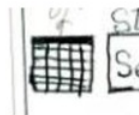


Figure 18 metaphor in calendar

When it comes to my suggestions, first, I would like suggest that this app can add the function of login. Only people who register can use it as software has its copyright. The other one is that sharing function is also important, which will encourage people to compare and communicate with others. This will be pretty useful for users to stop smoking.

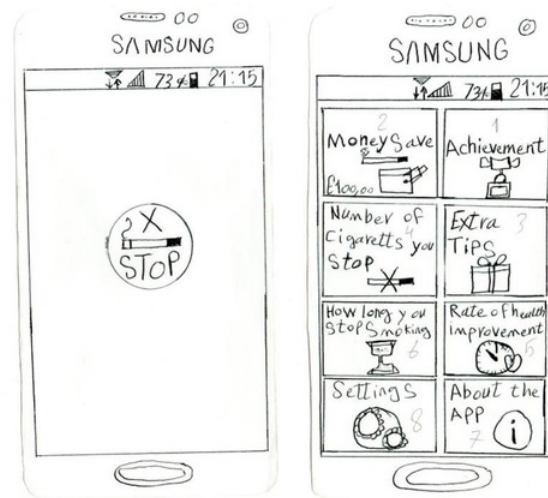


Figure 19 main interface

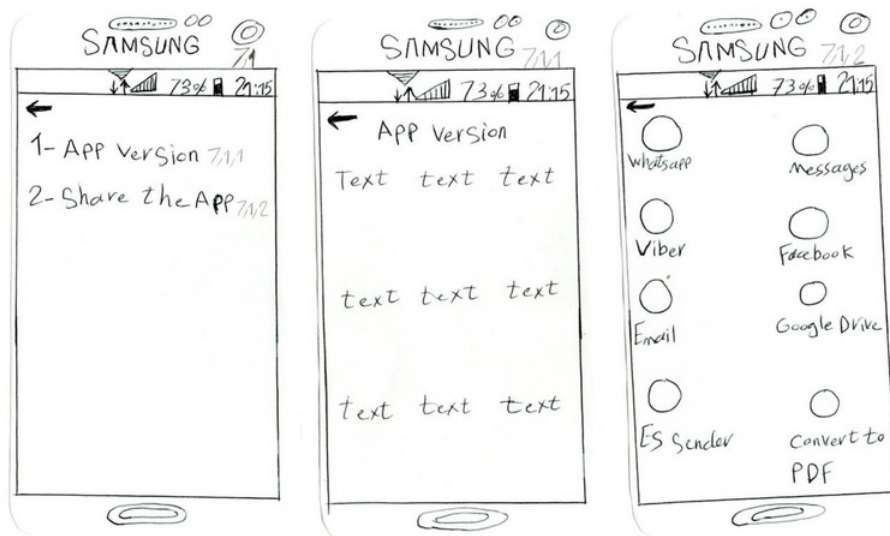


Figure 20 about the App

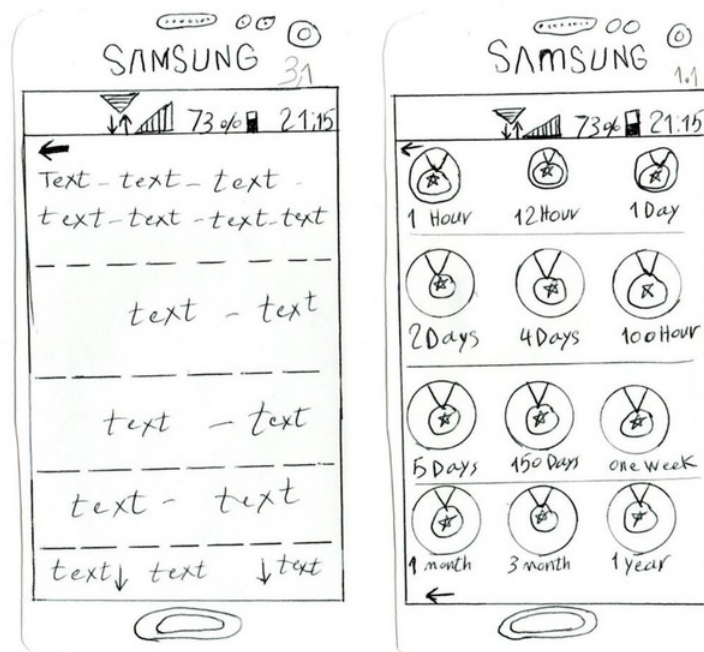


Figure 21 achievement and extra tips

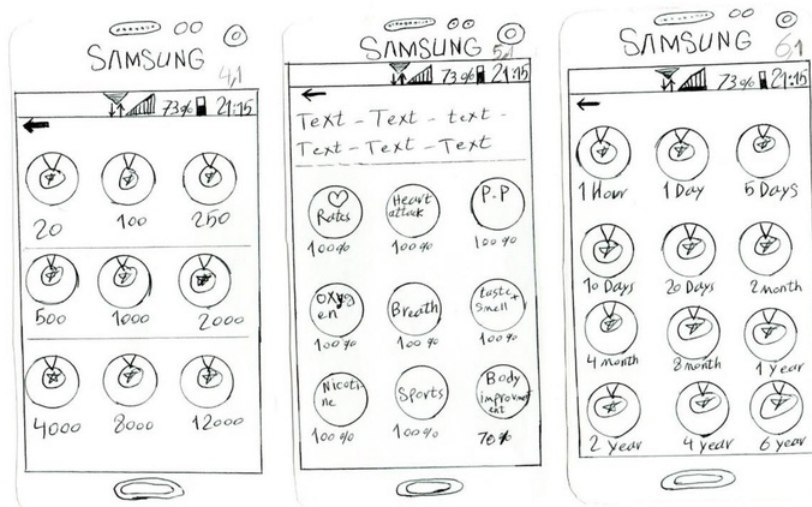


Figure 22 number of cigarettes rate of health improvement and time stop smoking

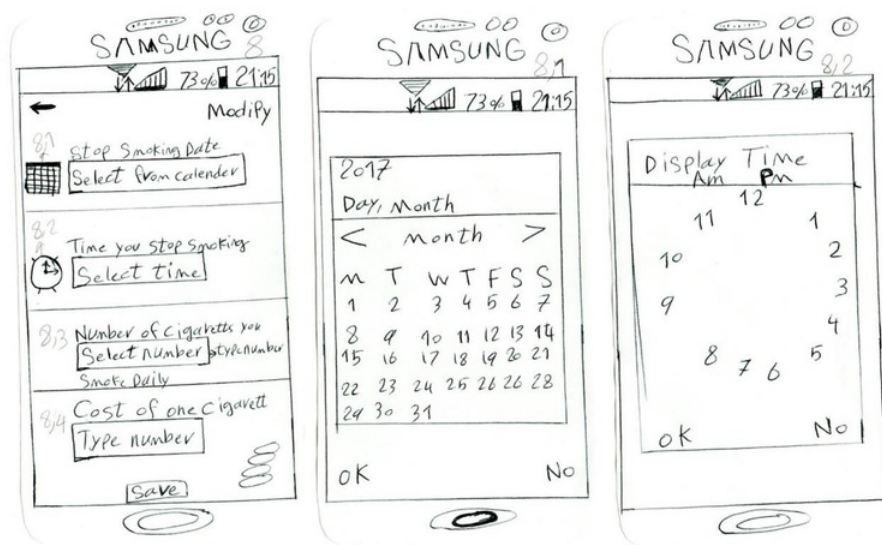


Figure 23 settings

Software prototype

The software prototype just follow the paper prototype's idea and Essam's advice, and is composed of twenty three screens. Because screens are so many that this session will only show the main part for this prototype. To design this prototype, iPhone 6 was chosen as a model and it can also be used in different type's phone. This prototype was created by 'Mockplus' [10] which is very famous in china for its functions of interface design. By using this software, Users can browse the software model in the web or their mobile phone and can click on the button to switch the interface, which just like you are using this prototype, but it has not back end. Seeing the link and QR code of the APPENDIX.

Guide page interface (figure 24) is used in the market more popular flat interface design, with a personal image of running to uniform interface planning, introduce the main function of the software. The entire interface looks coordinated and light, allowing users to have a pleasant mood each time they open the app.

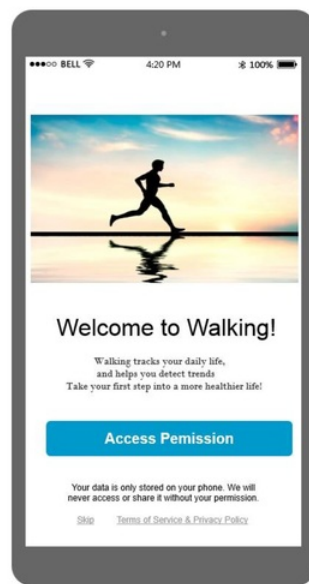


Figure 24 guide page

The login interface (figure 25) uses three pictures to take turns playing and introduces the main functions of the software. Users can choose different ways to log in, for example, Facebook , Twitter and Wechat. According to Essam 's advice, the skip button was removed.



Figure 25 login interface

Registration interface (figure 26) is mainly to fill in the basic personal information, like weight, First name, Last name, email and password.

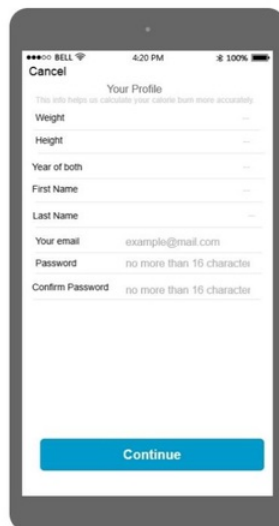


Figure 26 registration interface

The main interface show all module of this app, which includes friends, trends, challenge, settings, record weight, set goal and share. The user can understand the entire APP through the main interface of the planning.

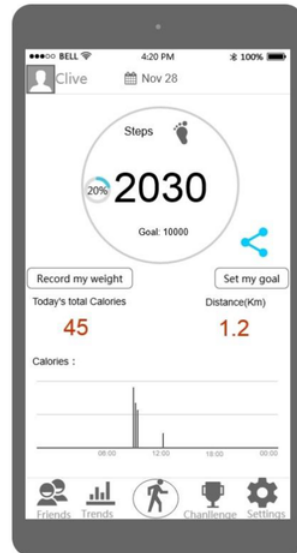


Figure 27- main interface

The goal management interface is mainly to introduce individuals to their weight, calories and steps required. Through the goal of setting and reminding, users can understand their own physical condition.

The image shows a smartphone screen displaying the 'My Goal' management interface. At the top, there is a 'Cancel' button. Below it, the title 'My Goal' is centered. There are three input fields: 'Weight', 'Calories per day', and 'Steps per day'. Each field has a small '...' icon to its right. At the bottom, there is a blue 'Save' button.

Figure 28 goal management interface

Weight recording interface is mainly the user to record their daily weight, through changes in weight to reflect the user's movement.

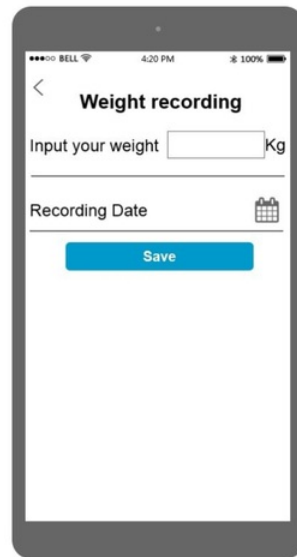


Figure 29 weight recording interface

Challenge interface is a list of forms of presentation, some groups and individuals from time to time to update the relevant challenges. Users can get satisfied with these activities.

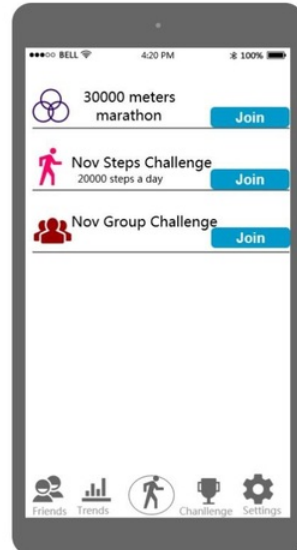


Figure 30 challenge interface

Setting interface also use a list of form to show the functions including changing profile, message notifications, language, privacy, general, help and feedback and about walking. Users can change profile and set the settings that they love. According to Essam's advice, a profile image was added.

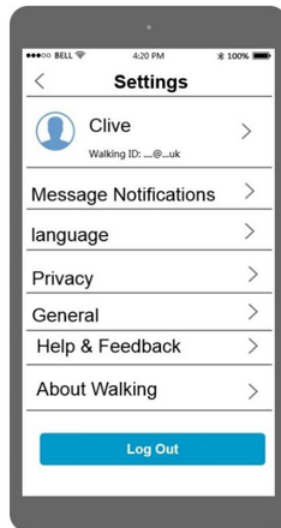


Figure 31 setting interface

Trends interface is made up of four parts, steps, calories, weight and distance. Users can see their achievement by histogram or line chart in the form of week, month or year.

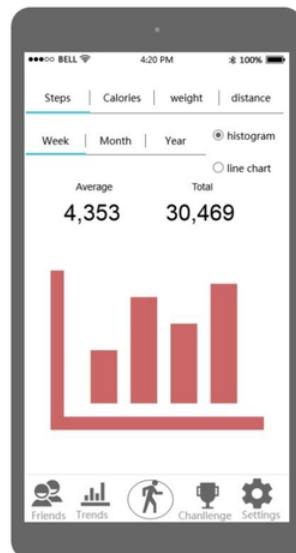


Figure 32 trends interface

Friends interface contains my friends, message, step ranking, moments, and add. Users can see their ranking everyday among their friends which will enough them to walk more. The menu of my friends is a collection of user’s friends and users can send message to their friends or groups by message. Users can share their experience about walking or running by moments so that their friends can make comments.



Figure 33 friends interface (1)



Figure 34 friends interface (2)

Conclusion

In conclusion, this report describe the design of walking pedometer and analyze its user's requirement and human factor. After this analysis, a software prototype was created. Many people insist that running and other fitness activities do not necessarily have a very strong purpose, but also a relaxing way to enjoy life. Therefore, in the future work, how to create a relaxed and comfortable sports atmosphere for users through APP is a worthwhile breakthrough. At the same time, most users choose to listen to the song or listen to the radio, and nothing is done. The percentage of the users who only concentrate on sports is not high. Therefore, it is a direction to think about whether it is possible to increase the function of listening music /FM in this pedometer.

APPENDIX

Appendix 1

Question/ respondents	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Do you love walk or run?	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Do you often use pedometer?	✓	✗	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Do you listen music when you walk?	✓	✗	✓		✗	✗	✓	✓	✗	✗	✓	✓	✓	✗	✓
Do you think the function of share is vital?	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓
Do you care the speed when you walk?	✗	✗	✗		✓	✗	✗	✗	✗	✗	✗	✓	✗	✗	✗
Do you think statistical analysis is important?	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Do you care walking distance, walking time, and walking steps?	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Do you care share and aim management?	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Do you think comments and points of praise for shared walking record is essential?	✓	✓	✓		✗	✗	✗	✗	✓	✓	✗	✓	✗	✓	✓

Caption: Yes ✓ no ✗

This is a questionnaire that I record when I ask them questions, 15 people involved.

Figure 35 Task analysis questionnaire

Appendix 2



Figure 36 QR code for software prototype

Appendix 3

Link for software prototype: <https://run.mockplus.cn/yii0YFVgBhXve2Oa/index.html>

Reference

- [1] Audrey Watters, "The History of the Pedometer (and the Problems with Learning Analytics)." [Online]. Available: <http://hackeducation.com/2017/06/22/fitbit/>. [Accessed: 16-Jan-2018].
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16-Jan-2018].

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GRADEMARK REPORT

FINAL GRADE

/100

GENERAL COMMENTS

Instructor

Introduction

Good discussion of the history and background of the pedometer. We like more references to be used in a background section as it shows good research and I feel that you may have read more widely than the references provided.

Task Analysis

Evidence of good research with target users with a good set of questions. One potential problem is that the user is busy running or walking and that will impact on the design ideas that will work for your app. You do stray into discussion of the app design when the focus should be entirely on user tasks.

Paper Prototype

This shows excellent application of usability techniques and shows great design work. It is well structured and includes many useful features showing careful consideration of user needs.

Human Factors

Specific examples from your design are discussed here showing good application of theory in the design of your app. Although you correctly describe the concept of affordance it would have been an improvement to show me the example discussed.

Review of Classmate Design

The review made many useful and constructive suggestions for improvement with a good level of detail.

Software Prototype

This is an excellent prototype with great design work and application of usability techniques. Also good discussion of design points.

Evaluation

Some good comments about the techniques used but I would have liked a little more detail.

Referencing and Format

Good referencing, appropriate and attractive format.

77%

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