

Assignment 1 TR

by Todd Renton

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HEALTH/FITNESS INTERFACE PROTOTYPING

Usability Engineering



FEBRUARY 2, 2018

TODD RENTON
Applied computing

Table of Contents

1.0 Introduction	1
1.1 What are fitness/ health device.....	1
1.2 App Developing.....	1
2.0 Task analysis.....	1
3.0 Paper Prototype	3
4.0 Human Factors	6
4.1 Human vision	6
4.2 Human memory	7
4.3 Human reasoning.....	7
4.4 Metaphors.....	7
4.5 Affordance.....	8
5.0 Walkthrough	8
6.0 Review	9
7.0 Software prototyping.....	10
7.1 Software Image	10
8.0 Evaluation	18
9.0 Conclusion.....	19
10.0 Bibliography	20

1.0 Introduction

This is a report outlining the design discussion of developing a health/fitness app. Contain within there will be an outline on what type app the design was based on and improvement that the app could provide to users. There will be a task analysis section that has been performed on the app to help with the overall design of the app. A paper prototype will be displayed and relevant feedback which should improve original design. A software development of the improve app and evaluation will be feature. The document will also evaluate these usability techniques and a conclusion of how theses process improved or didn't improved said design process.

1.1 What are fitness/ health device

Health and fitness device are used to keep track of a set person activity this could be eat habit, blood pressure, sleep patterns mood and many other physical activities that a person could get up to. The aim of the device is to keep track of a person habit such healthy eat, excises and can be used to encourage user patterns and help to resistance in certain type activists such as smoking and drinking too much. [1]

1.2 App Developing

Pedometer is app which count the number of steps that a person has walk while active. The app also calculates the number of calories a person has burned while traveling. Walking speed and time length of journey is also calculated. [2] The app being design will use similar feature as Pedometer but will have a map in which user can see the path they travel along and get a better amount of burnt calories as the app with have attitude measure for hills which user could walk along.

2.0 Task analysis

Task analysis is the process of learning about the ordinary user's habit by observed their actions and understand how they perform their tasks to reach their goal. [3] There are several types of task analysis such as cognitive and Hierarchical. Cognitive task analysis is a method of determining the mental processes and skills required to perform a task and the changes that occur as skill develop. [4] Some are which are focused on in to understanding tasks that require decision making and problem solving. [5] Hierarchical task analysis is a structured, objective approach to describing user performances of a task. Hieratical task analysis will break down these tasks into multiple levels of subtasks in which user interaction with the system can be descried. [6] The task analysis performed is that of a list of questions which are aimed at the user actives to give a better idea of how the system should be made so that it better fits the function that the user would want to use.

Who are the users?

User of the app will be people looking to keep track of the amount of step they take per day and see how much calories they lose due to this activate.

What task do they perform now?

Mainly the app will be able to keep track of the movement of the person by phone so that that it will keep track where they move from one place to another.

What are the desired task?

The main task of the user will be to be able to walk a set distance or to have been able to burn off calories amount that the user wants.

What relationship between users and data?

User want to know how much calories they are used by the movement they have done as each user may will different amount per day which user can use this app to monitor.

What other tools does the user have?

Other such tools which can be used are other application which have been design in the way of completing this task.

How often are they task performed?

User tasks will be performed daily.

What are the time constraints on the tasks?

The result will be available in the history every day for viewing by the users.

What happens when things go wrong?

The worst case that could possible happen with the device is that it doesn't work as function in that step counter doesn't work correctly in which a fixed would need to be made availed as soon as possible.

3.0 Paper Prototype

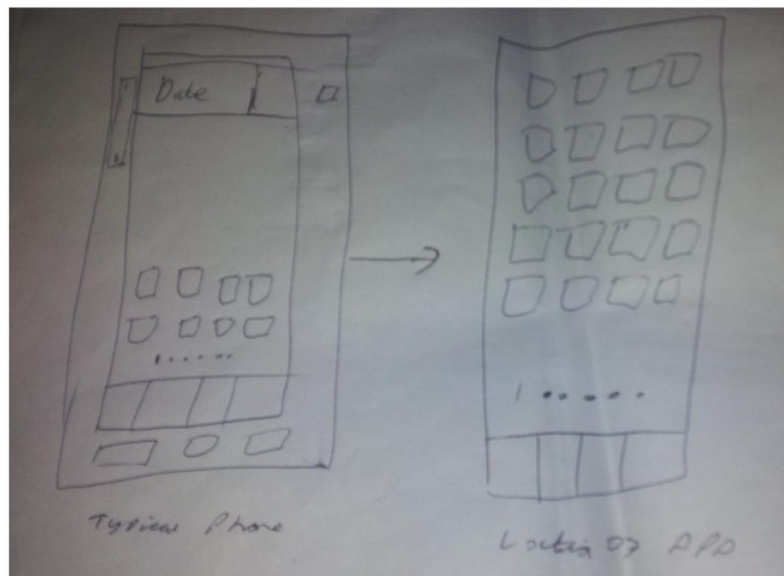


Figure 1: App location

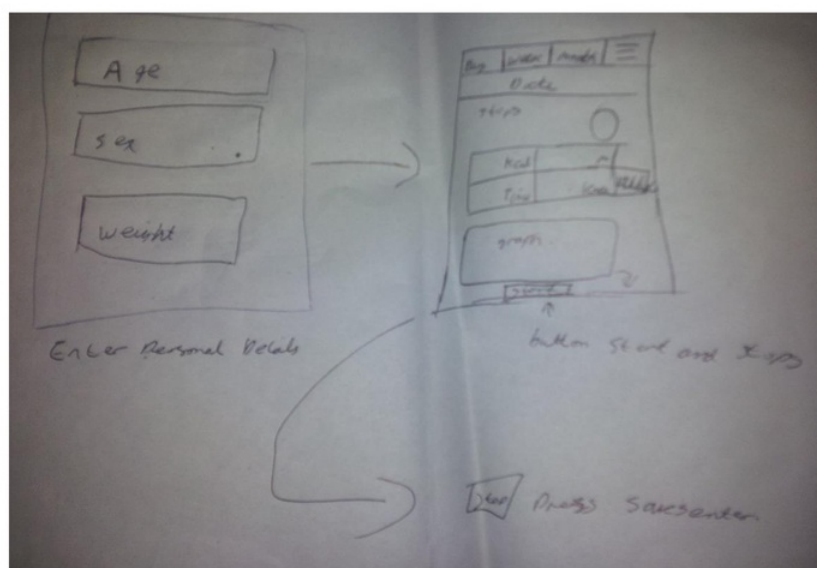


Figure 2: start up settings and main user view

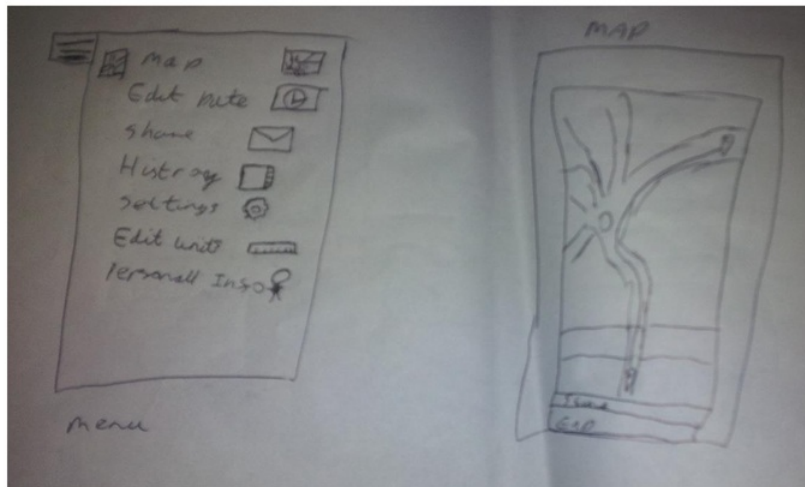


Figure 3: Menu and map page

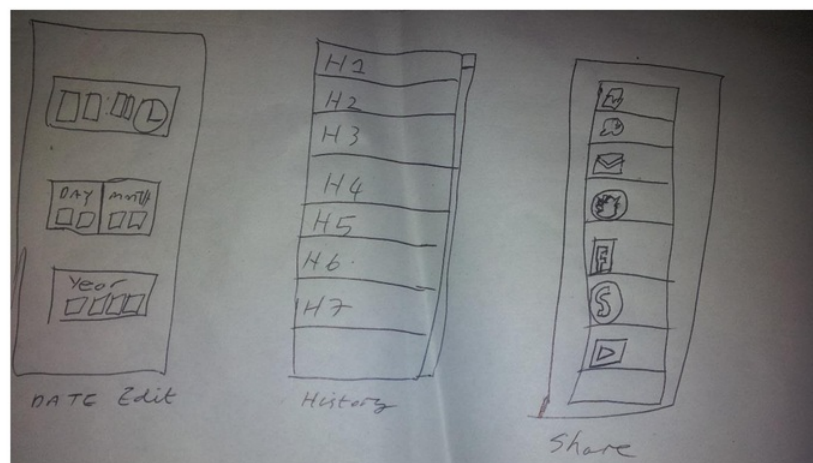


Figure 4: date settings/ history menu/ share feature

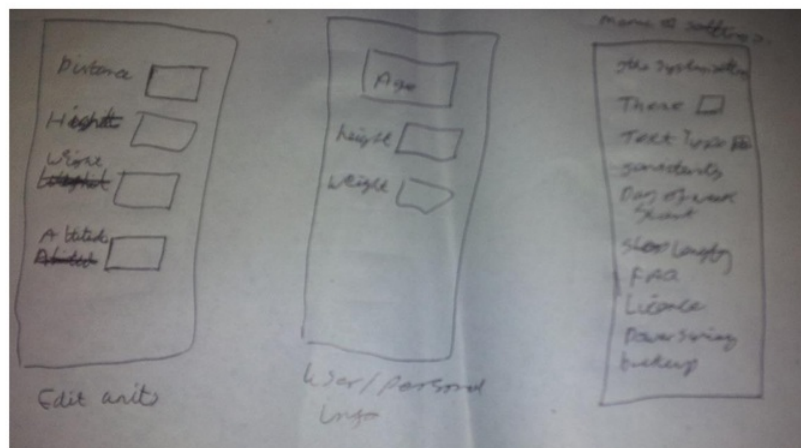


Figure 5: Units settings/ user information/ advance settings

4.0 Human Factors

This section of the report will look at set number of human factors theory's which need to be consider when design any new type system. The type of theory's looks at will be that of effect of human vision, human memory and human reasoning. This section will also be looking at feature of a metaphor and how human apply affordance to set objects.

4.1 Human vision

Human vision is solely relenting on that of what owner eyes see as every person eyes have three type of colour cones. One for red light, one for green and one for blue which make up all the colour that we could see. [7] However not everybody gets to see the same thing such as some people will only have two of these three cones working correctly in which they can't see set colour tone correctly and mistake some colour for others. [8] Here an example of colour blindness with the left figure 6 pens being normal and the right figure 7 being that red/green colour-blind person which could make a different in the pentation of images. To reduce the change of this effect the app one way to try and minuses this such issues is to have different types of layout of the colour being used which can be found in the advance settings.



Figure 6: normal pens [8]



Figure 7: Deuteranopia pens [8]

Gestalt Theory of perception is based of the laws of grouping in which has section to the proximity, similarity, good continuation and closure. Below is an example of it in action where the images in figure 8 are more recognisable and nicer looking that the image arrange in figure 9.

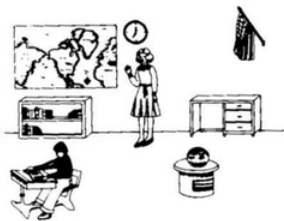


Figure 8: Organised image [9]



Figure 9: Unorganised image [9]

4.2 Human memory

Human memory works of 3 types sensory, short and long term. Information Can be passed between these memory type such as when you touch an object the feeling can then be stored in short term member and reoccurring actions of this can be saved in the long-term member. The problem is that short term member can only hold a set amount thing at the same time. [10] Miller magic number experiment 1950 was that most people are only able to remember a 5-9 item of number which are listed in a row. So, for a sequence of 92427572832 most people would kept track up to the five number 92427 and start getting confused after this and it possible for people remember the end of number strings. [11] Example of design which was affect by this was that of each menu in which the list has been set to the fewest amount of object availed.

4.3 Human reasoning

There are three different types of human reasoning. There are deductive, inductive and abductive. Deductive reasoning is a logical conclusion based on facts such as a dog barks when someone at the door, hence when the dog not barking their no one at the door. Which may not always be correct. [12] Inductive reasoning go from a fact to genial fact e.g. all swans I seen are white therefore all swans in the world are white, but this might not be true for all swans in the world. [13] Abductive reasoning is where a fact it taken then any action that may be link and conclude the action caused said fact. Such example if children violence on tv children are going to be more violent when they grow up. [14] So from the design it better to use feature in which people are intended to see such as if they click a button in the menu it take them to the correct page.

4.4 Metaphors

A metaphor is a representation associating one object or meaning with another hence why it can be understood anywhere in the world and can be used as solution from one problem to solve another issue. [15] An example of this is with the way that data is saved on a computer such they use a floppy disk. Issues with this that some metaphor such as a book or this save have stayed the same for a long time and everyone known symbol, but it hasn't change. In the design there are appropriate images of icons for the menu to help user understand what the pages are like the gear for settings and a map for the map page.



Figure 10: Floppy disk save

4.5 Affordance

Affordance is the act in which by observing an object for the possible action or actions which can be performed. [16] So, a common example of this can be a light switch which is where the affordance or expected use of the switch is when flip the light comes on and vice versa. In the design a user can click the start button to have the app start and the stop button to stop it. Sometimes object affordance isn't easy to know items that people don't often encounter one way that a device can have poor affordance is by having too many buttons and levers and no instructions.



Figure 11: Light switch [17]

5.0 Walkthrough

This section will outline feedback given of the paper prototype made above in which fellow peers review the design of the step counter. Some of the main issues with design of the app is that it could have a goal system place in it which user can set their own goals. For this the app could have another menu for the targets and a way of reminding the user about their goal and could encourage them to attend it. From figure 2 while working with the main page feedback received on the device was that a target system to be set up with enter user details so that can have a walk range goal. Another issue that was brought up was the display of the menu have both metric and graphic info. The idea is to have the user choose the form of which they get the result and measure where it be full in numerical form or graphic. Other info I gather is that the app can have a feature which will compare details from one day to another such as comparing walking distance from yesterday to today which user could find useful. For the figure 4 history menu could be changed to that the display is different to reduce the amount of enter a user would have to scroll through so that the history. In which the response was it be better if it was broken down to day/ month and the year in which 7 days / 4 or 5 weeks/ 12 months.

6.0 Review

This is a review I did of one of my peer app which was about an alcohol control app. The alcohol control system which is designing to monitor the amount of alcohol that a person consumes. While looking over the app one issues that could causes an issue in the design was that the user would need to input both amount that they drink and the units to get their total which I suggested that can be done auto by a formal. Other feedback I recommended is that there could be a new page for mixed drinks as they can be harder to keep track of. The last piece of advice is that the data could be stored better for user view so that they know how much they drink per month and could compare past month to each other.

KNOW YOUR LIMITS

- WHAT IS YOUR LIMIT?
- MAX 14 UNITS FOR MEN, 10 FOR WOMEN
- NO SAFE DRINKING FOR PREGNANT WOMEN
- ALCOHOL CONTAINS PURE ETHANOL
- THERE ARE THREE (3) FOR UNITS
- YOU MAY STILL BE DRINKING THE EXCESSIVE LIMIT THE NEXT DAY

DAILY CALCULATOR

DRINK (UNIT)	AMOUNT	UNITS	CALCULATOR
BIG BEER (PINT)	☐	☐	☐
BIG BEER SMALL BOTTLE	☐	☐	☐
GIORGIO PINT	☐	☐	☐
LONG - 175ML GIN	☐	☐	☐
GIORGIO - SINGLE	☐	☐	☐
ALCOHOL - BOTTLE	☐	☐	☐
TOTAL	☐	☐	☐

WHEN WILL IT BE SAFE FOR ME TO DRINK?

TIME I STOPPED DRINKING: 24 HOURS

UNITS CONSUMED (DAILY): 14

CURRENT TIME:

• HAVE STOPPED: ☐

* THIS IS BASED ON AVERAGE OF INPUT

WEEKLY CALCULATOR (UNITS)

MONDAY ☐

TUESDAY ☐

WEDNESDAY ☐

THURSDAY ☐

FRIDAY ☐

SATURDAY ☐

SUNDAY ☐

TOTAL ☐

TIPS FOR REDUCING ALCOHOL INTAKE

Figure 12: Alcohol control system

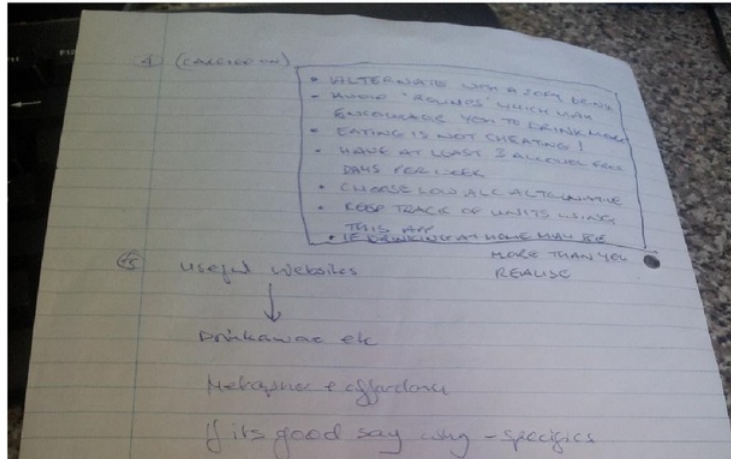


Figure 13: system info and useful links

7.0 Software prototyping

This section of the report is of the software prototype which is an advance design made in a set software program will improvement made from the paper prototype version. The main software use for the software prototype is that of photoshop that is one of main adobe products which can be used of graphic editor program. With this software image can edited in a range of different ways such as with an adjust, crop, remove object, retouch and repair old photos. The software can also alter the colour of images and the way they can be displayed. [18]

7.1 Software Image

When loading up the app from the main page user will then been sent to a screen which can be seen in image of figure 14 in which user can enter their starting values this only happen if the phone is first use other than this the starting value can be change in the menu. After entering the detail user click the start in which the phone move loads the main menu.

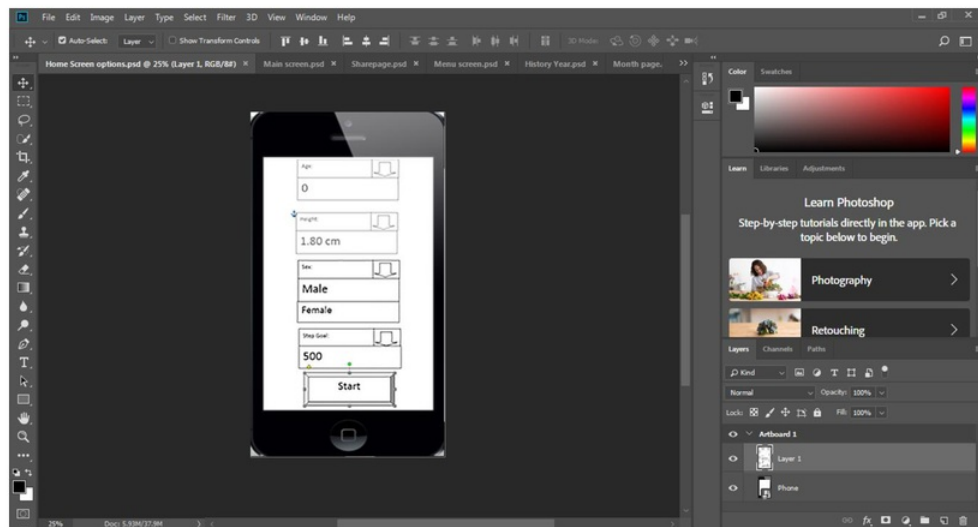


Figure 14: Load screen

The main menu screen feature all the listed requirement that the user want and has a menu at the top right as seen in figure 15. User Can start tracking function of the app by clicking the start button and stop it with the stop button which replace the start button when running. User could change the display of the measure into graphic form in advance setting option as user may want a graphic look or pure numbers

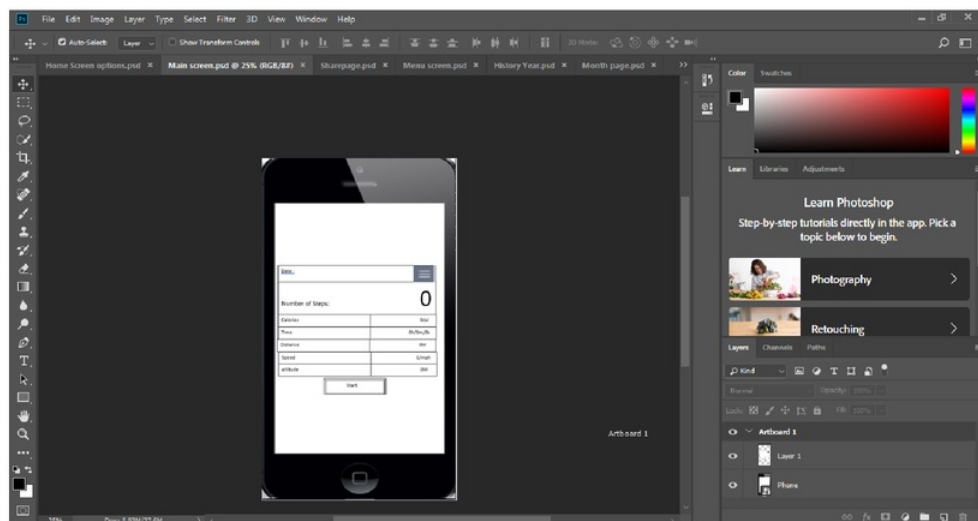


Figure 15: main menu

The menu screen will be display in a way that user can read the name of each page and have an icon which describe what the page is as display in figure 16.

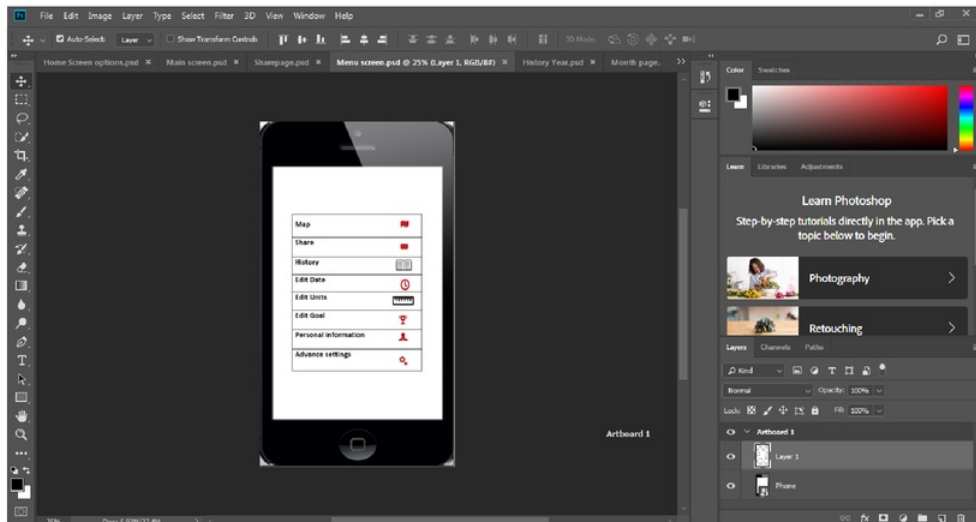


Figure 16: Menu

The map page will display the map of the current path or paths that the user has walked for today activations and can see the starting position and end of each walk.

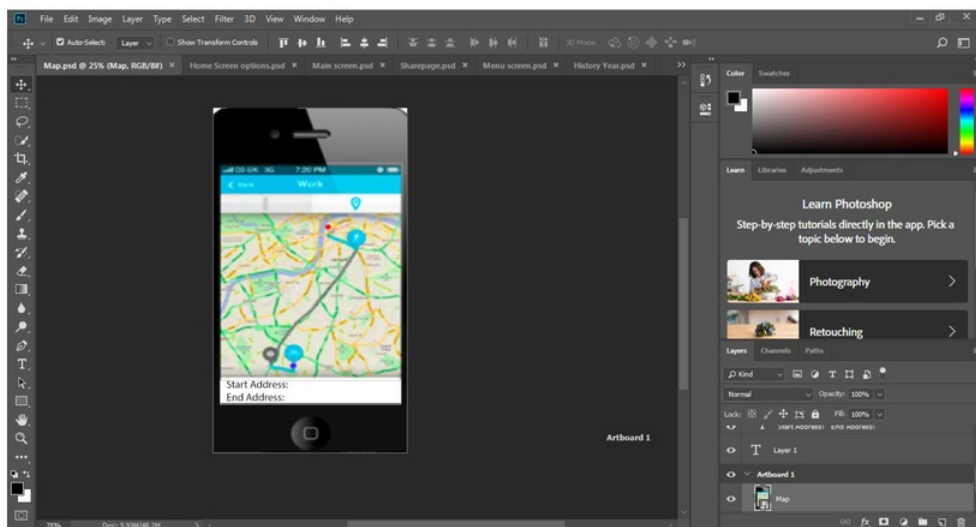


Figure 17: map page

The next page is that share is where user can send datils of they walk, goals achieve different types of social media sites which the app links to by clicking on as listing in figure 18.

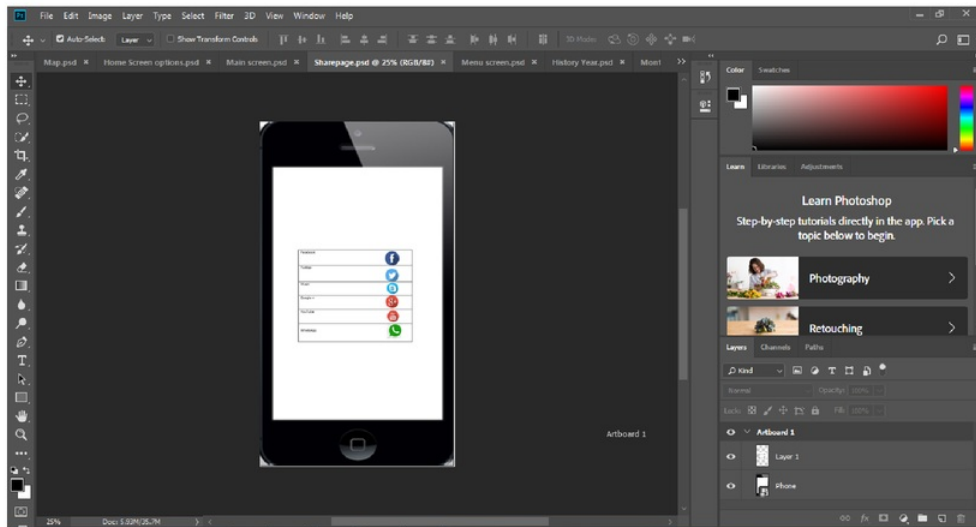


Figure 18: share page

The history will take a while of user to get use to as it takes time getting to the right screen as the first will list year data in which the user can click on to find there pass sections.

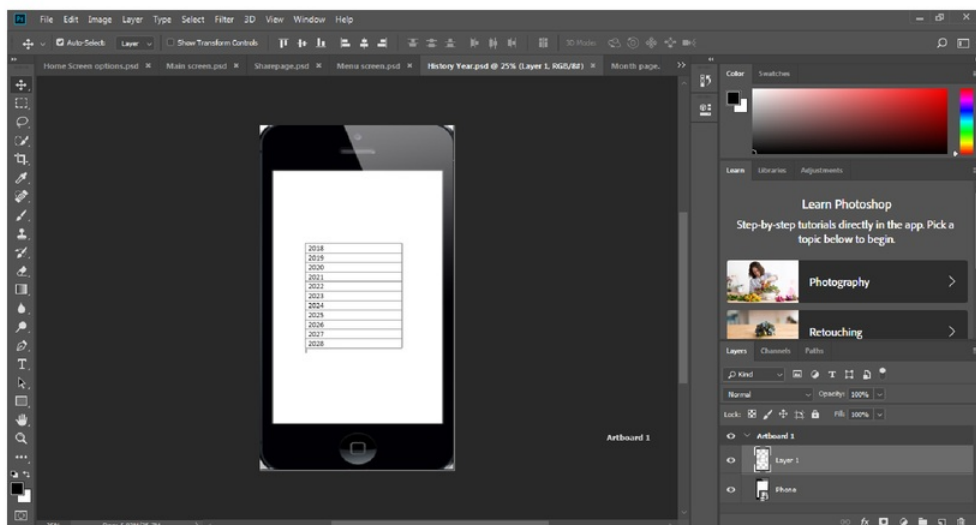


Figure 19: History page

After the year selected the next is the month in which has all 12 month displayed as seen in figure 20.

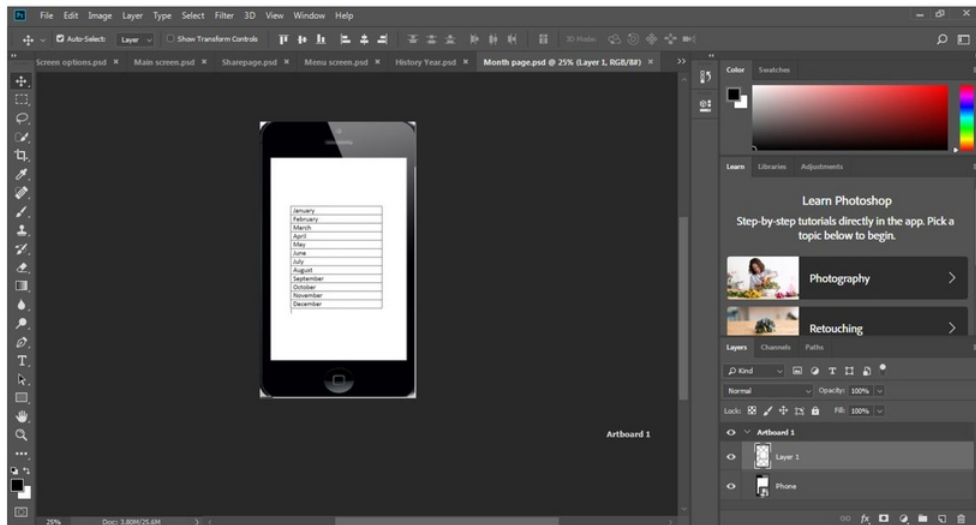


Figure 20: Month list

Week list displayed week from 1 – 5 on compared to the month.

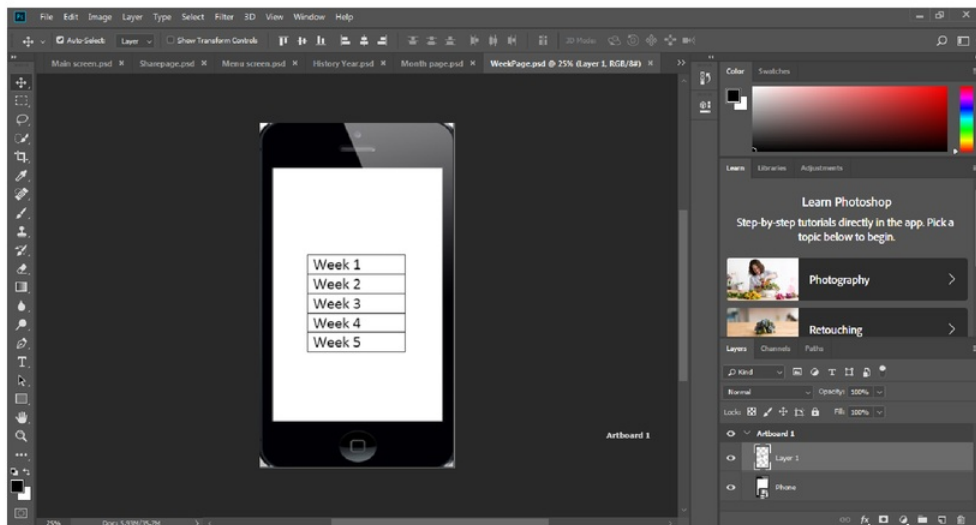


Figure 21: week's list

The day list should all days of the week by clicking on these users can see the result for each day.

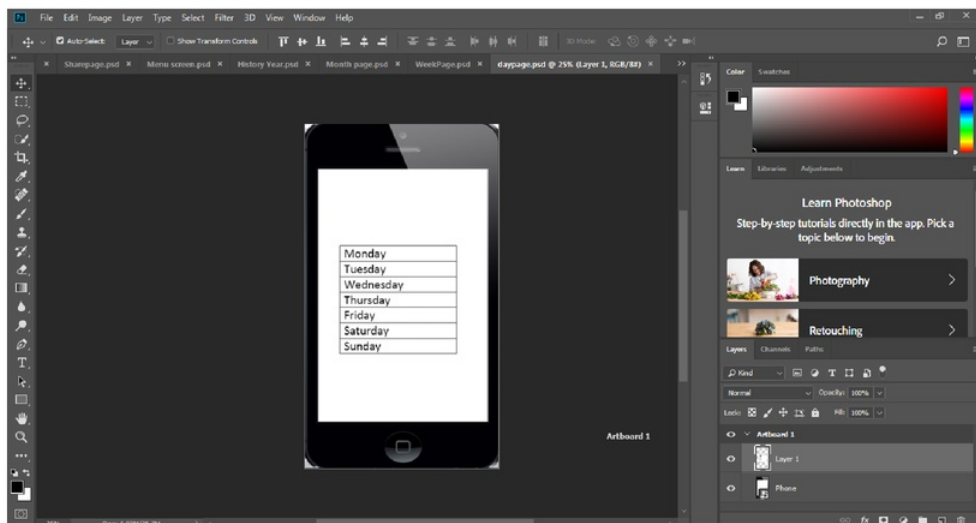


Figure 22: Day list

The result page will look like this as the map will display the walk path, under will be information about the that walk and amount of step and goal amount reach.

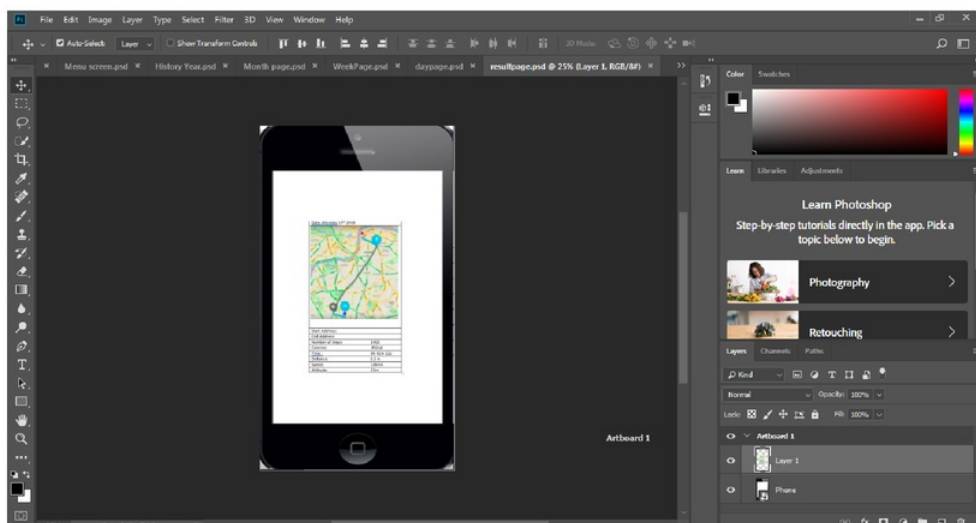


Figure 23: Result

Figure 24 show how the time setting can be change, and the user can change their time zones.

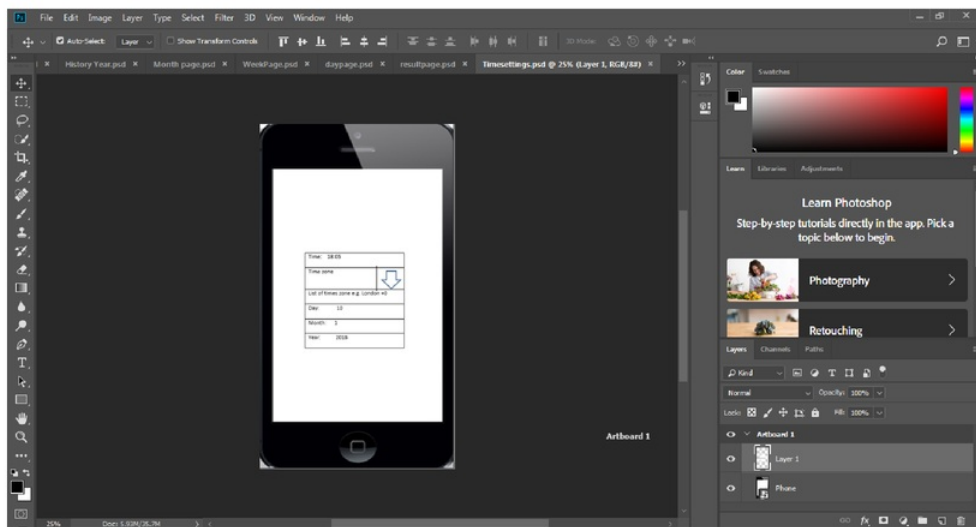


Figure 24: Time setting

User can switch between the imperial and metric values.

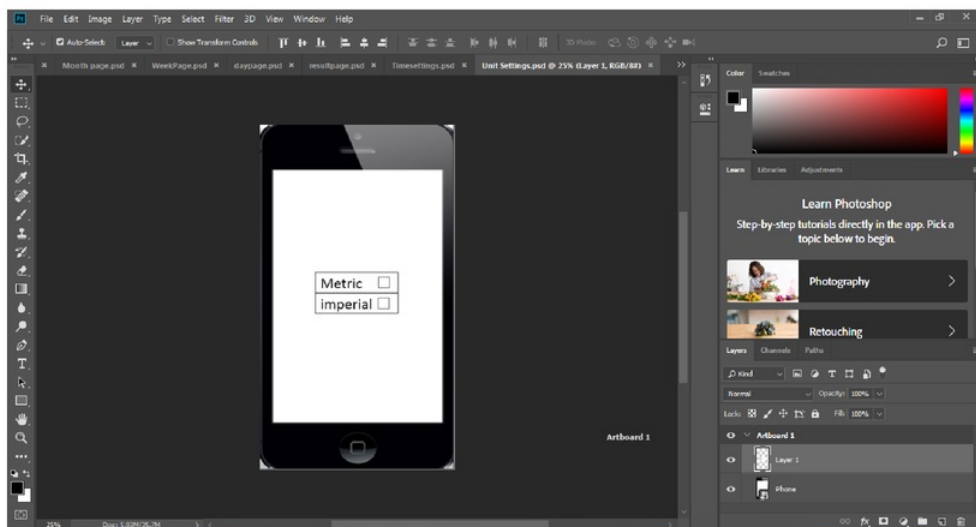


Figure 25: unit type

User can manual change their gal setting for a day, month and year.

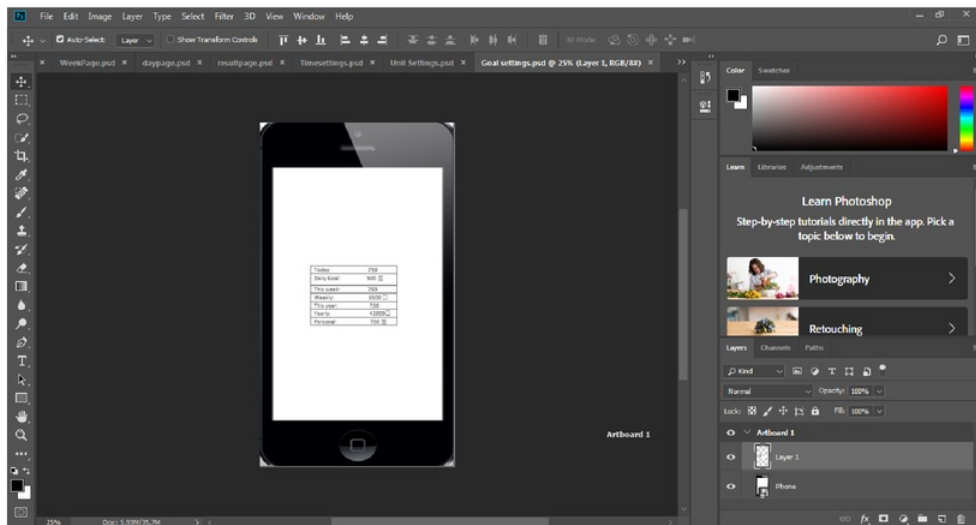


Figure 26: Goal setting

Users can edit their person details so that Height and age can be changed.

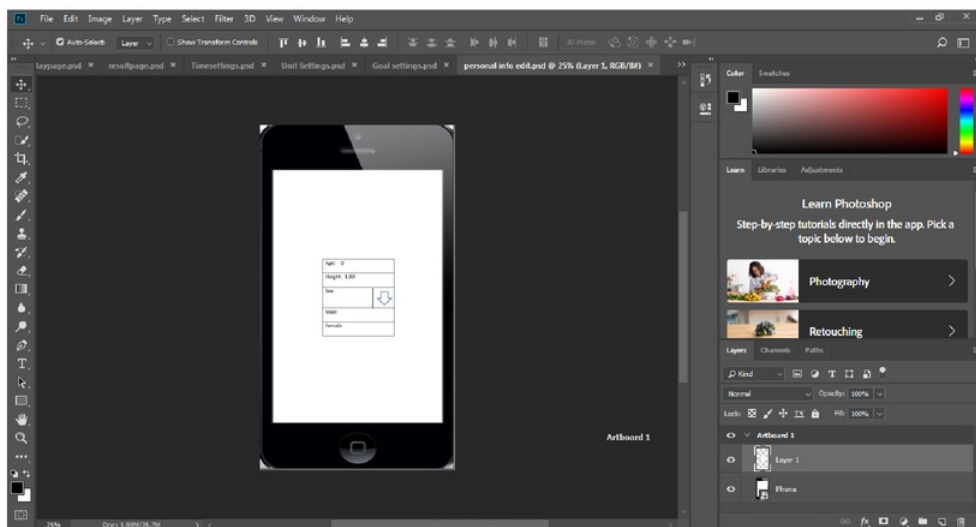


Figure 27: Personal setting

This is a display menu of the advance setting in which user can alter the theme of the app that is displayed, graphical setting the sensitivity and the distance of which a step is counter and well as this menu has other such feature.

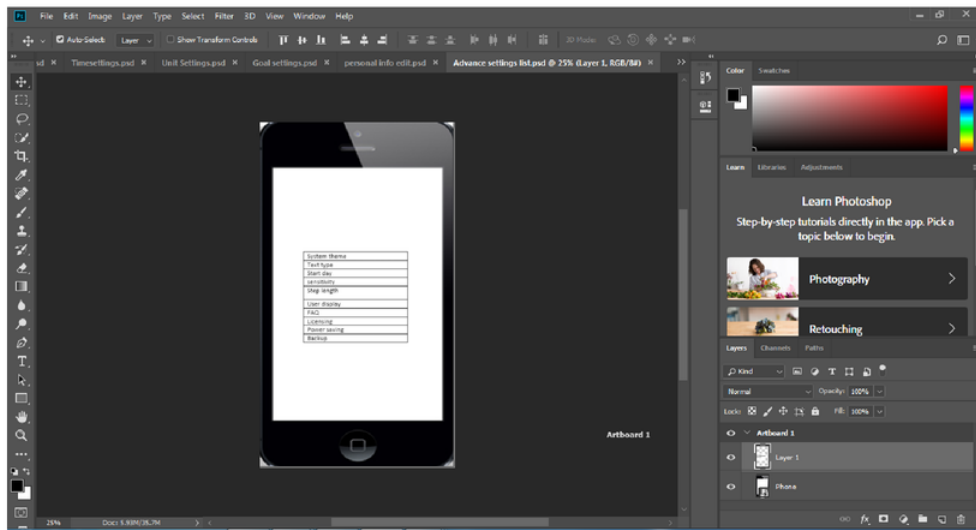


Figure 28: Advance settings

8.0 Evaluation

An evaluation of the uses of usability techniques in the used of the design for the creation of the software analysis. The app has a task analysis run on it to help understand the user function and how an average user is more likely to use the system which help in how the design will need to be feature like however doesn't help with the design just gives a genial look of what the app need to have. The paper prototype gives a quick draft of how the app could be look and by conducting a walkthrough of the paper prototype app can help in see what feature are missing or could be improved. From run the walkthrough help to identify that a goal system will help user keep using the app as well as have them have some goal system which mange by individual users can be so that each user can be change. Other feature identify is that some user may prefer a graphic design or a simple numeric design which could be made so that app can have both version in which the user can decide. Other factors of technique are that of human facts that need to be place in which not all humans see the same such as some people are colour blind in some form in which a setting can be used to change the original design of the app theme. Another human factor which was with human memory in which reduce the length that some menu must be can be a challenge mainly with the amount advance setting being used in that section as have a long list can put user off having to search though the long list compared to app with a shorter list. In the creation of the software developed app some of the are did have long list which may need to be improve going forward. Compared to the paper prototype which has a user using and look at the system the human factor give idea of added feature could be used to help when user use the app.

9.0 Conclusion

In conclusion based on the use of usability technique a number changes were made to help improve the system such with the additional of goal feature, multiple themes design of the app, a change in graphical design and numerical design system. While these tools did make some changes to the design of the original paper prototype to the software development one change that was made without these systems was with the way the history is being record was broken down compared to have one enter per recorded that have been made when now it an enter per day. Based on this the user of these technique has overall improved the design from usability methods.

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Images for software development

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Assignment 1 TR

GRADEMARK REPORT

FINAL GRADE

/100

GENERAL COMMENTS

Instructor

Introduction

A short introduction with a few references (more could have been squeezed in and examples/trends shown). Nevertheless effectively introduces your topic.

Task Analysis

Appropriate referencing and application of Task Analysis questions. You do not stray into thinking ahead to the app design which is a good thing at this stage.

Paper Prototype

Good design work and use of the required hand drawn format. Well structured and includes diverse useful features showing careful consideration of user needs and selection of design components.

Human Factors

A good and well referenced discussion of Human Factors. Although you correctly describe the concepts and discuss their application it would have been an improvement to show me examples from your own prototype designs as I could clearly see the application there!

Review of Classmate Design

The review made a few useful and constructive suggestions for improvement – you could have used bullet points here to add clarity.

Software Prototype

This is an excellent prototype with great design work and application of usability techniques. Also good discussion of design features. Cropping the screen shots would have been an improvement. Very nice discussion of process of design

Evaluation

Good analysis of the techniques used with some specific application in your work discussed.

Referencing and Format

Good referencing, appropriate and attractive format.

70%

PAGE 1

PAGE 2

PAGE 3

PAGE 4

PAGE 5

PAGE 6

PAGE 7

PAGE 8

PAGE 9

PAGE 10

PAGE 11

PAGE 12

PAGE 13

PAGE 14

PAGE 15

PAGE 16

PAGE 17

PAGE 18

PAGE 19

PAGE 20

PAGE 21

PAGE 22

PAGE 23
