Cover Page

COMPSCI 345 / SOFTENG 350 Human-Computer Interaction

Assignment One: Usability Evaluation

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- I declare that this work is my own work and reflects my own learning.
- I declare that where work from other sources (including sources on the world-wide web) has been used, it has been properly acknowledged and referenced.
- I understand that my assessed work may be reviewed against electronic source material using computerised detection mechanisms.

Place this page in the front as the first page of your document that you are submitting to Canvas

Usability Evaluation of “AT Track My Bus” iOS app

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Compsci 345 Assignment 1

March 31, 2017

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Part one: Evaluating the app Don't write more than 1,000 words

Question 1:

Functionality of device

Delete a stop – remove the indicated stop from the list of monitored stops

Add a stop – add the stop to the list of monitored stops.

There are 3 ways of finding stop to add a stop.

- **Find a stop by name** – search a stop by entering location name. ex) queen st
- **Find a stop by stop number** – search a stop by entering stop number ex) 4228
- **Find a stop near current location** – click icon and see the bus stops near my location.

Edit a stop – change indicated stop's information from the list of monitored stops.

There are two functions that user can modify.

- **Multiple buses in one stop** – click multiple buses in a indicated stop to see multi-information. (User can see bus information as much as they want in one stop)
- **Rename a stop** – change the stop name after clicking edit button. (User can change their monitored stop to nickname which makes it easy to access in stop list)

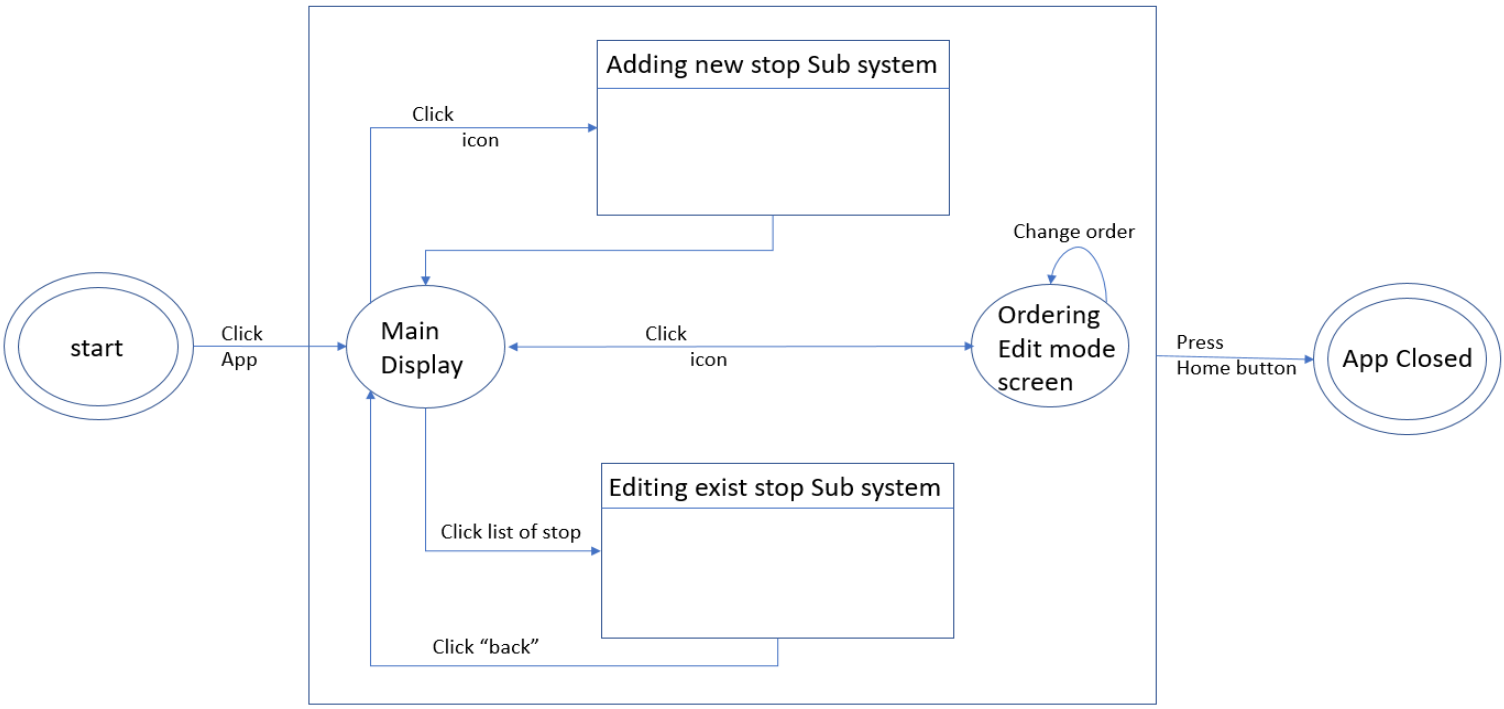
Reorder stop list – click the icon. It shows screen that user can change order of monitored stops. User can edit list of order by their favorite.

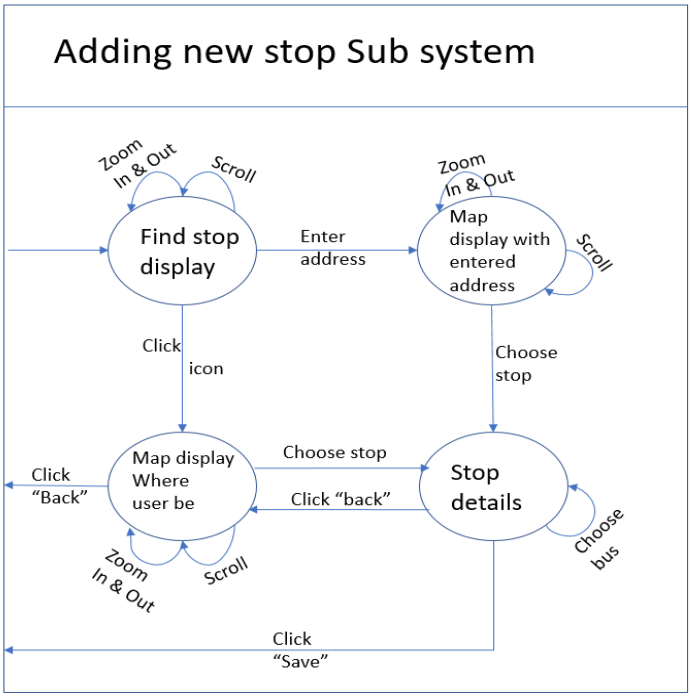
Real time for bus schedule (current & future) – See current bus location and how far the bus from the stop. (By letters or in map) (scroll down the page refresh the information of bus time)

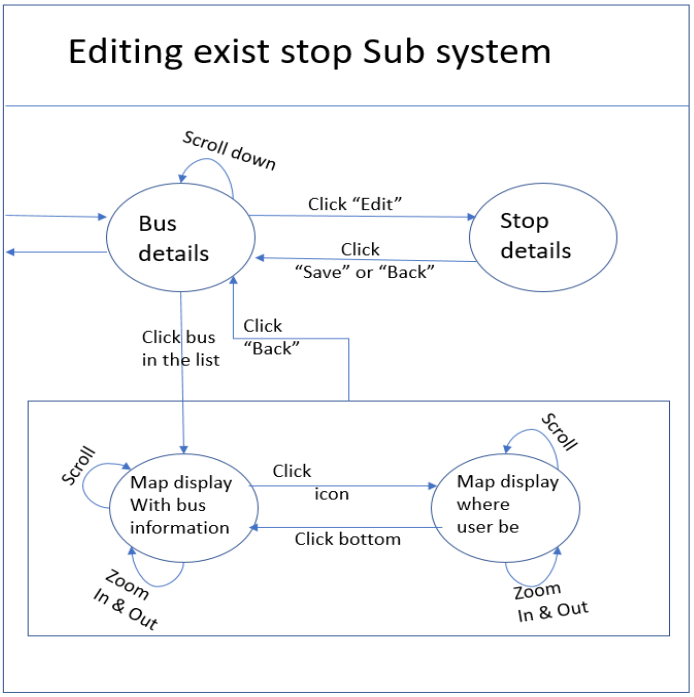
Expand and contract map – User could zoom in and zoom out the map so they can see map closer and wider. Also by scrolling the map, it is able to see other place or track bus wherever they want.

Question 2:

State Transition Network (STN)







Question 3:

Heuristic evaluation

Visibility of system status

1. When app refresh the bus real time, there is progress bar on the top of screen which is moving from left to right side. Then user could notice that the real time will be refreshed. Likewise, every time when screen is changed, progress bar shows load time.
2. When the app is searching the bus stop address with entered address, there is loading circle icon in front of the searching section. This icon indicate taking a time to google the address in their database.
3. In the edit bus stop function with choosing multiple buses, if user choose the bus, it changes to chosen status icon from blank circle icon. It makes people to see how many buses or what buses they chose.

Match between system and the real world

1. "Swipe left for more options..." It seems like real world conversations instead of just saying labels such as "swipe".
2. However, app used system-oriented term instead of real world conventions. For example) departed, scheduled, edit, save, back etc...

User control and freedom

1. There is “back” function to move back to previous page which is same as undo function.
2. In the bus stop list, user can delete and edit the list after adding the bus stop. Therefore people don’t need to add again to change the details about bus stop.

Consistency and Standards

1. The app used common language English and easy word such as “edit” and “delete” instead of ambiguous or difficult words.
2. The app used familiar icon such as my location and bus. It follows platform conventions. Therefore, people are easy to distinguish between their location and bus stop icon in map.

Error Prevention

1. For “delete” function, there is no prevention action such as confirm again with the delete. Even though user tapped “delete” by mistake, app directly delete the bus stop without any message so it makes user have to add again.
2. When user search the stop by address, app show the list of addresses related to word that they entered. For example, enter “queem” to find queen st then there is lot of address list similar with “queem”. Even though they put wrong words, app try to correct their spelling.

Recognition rather than recall

1. In the main page, user could find + icon on top right side easily. Although they haven't read instruction of how to add bus, it is easy to do the action what they want. These important action is easy to access and identify in this app.
2. Like a number 1, app used familiar common icon or words to use the functions. So people don't need to remember how to use the functions.
3. To minimize the app of user memory, app suggest the user set of options than let them to remember whole address name. For example, entering "queen st" shows more options to choose detailed address. Even though they don't know about exact name of bus stop, app shows by letters or location in map.

Flexibility and efficiency of use

1. App allow people to change the bus stop name. So advanced users can use nickname function to show nickname in the list instead of bus stop number.
2. Also, advanced user could change their bus stop order. By just clicking ordering icon, it is possible to change order in the list.

Aesthetic and minimalist design

1. The app shows only necessary information about the bus stop, real time and schedule. Except the icon, there is no picture or unnecessary words are written in the screen. Interfaces is cleared of elements and contents and it support the page goals and tasks.

Help users recognize, diagnose, and recover from errors

1. There is some error message about the bus information (but it is not pop up error message just written down on the screen). The app provides some message with reason of that action such as “No departures for your selected routes in the next two hours” in the place where bus real timetable be.
2. If system can’t track the bus, app sends the message with red box on the top with reason in plain language not codes.
3. But app doesn’t provide pop up error message. For example, user didn’t turn on the location service so he/she can’t use my location function. However app just make that function inactive rather than sending a message to user with that reason.
4. Also, when app sends error in the screen, it doesn’t have solution for error.

Help and documentation

1. N/A. There is no help page in the app but if user see app store instructions, there is some explanation about the app such as features, main functions and description.

Part two: A Usability Test Plan

Product under test

App that tracks where user's bus is in real time.

Test Objectives

To ensure that app is user friendly. So, any type of user can interact the app easily without any trouble.

The test consists of measuring time taken/success rate in given time of user ability for user to do below:

- Adding stop by using stop address or number.
- Editing monitored stop list such as renaming or adding more buses in one stop.
- Finding out how to see the bus schedule in real time and track the bus in the map screen.

To figure out method or solution how to improve user interface.

The test consists of asking difficulties or writing suggestions.

Participants Required

The test requires 400 participants. All of participants are recruited randomly in 2 teams of card holder/ non-holder with 4 groups of age. Also, each group will consist of 50 people being 25 males and 25 females.

The group are arranged by below:

	Team 1 (AT card holder)	Team 2 (non-holder)
Group 1	Age up to 18 (Child)	Age up to 18 (Child)
Group 2	Age between 18- 24 (tertiary)	Age between 18- 24 (tertiary)
Group 3	Age between 25-65 (Adult)	Age between 25-65 (Adult)
Group 4	Age from 65 (Senior citizen)	Age from 65 (Senior citizen)

Tasks to Undertake

Before starting the test, the task will be given to users. The user will do the task step by step in given time with questionnaire. (Measure time taken also)

Here are the questions list:

1. Add the bus stop by using address
2. Add another bus stop by using stop number
3. Edit the stop name and bus list in the stop
4. See the selected bus schedule in real time
5. Reorder bus stop in the list

Data Collection

There are two types of data will be measured and surveyed.

1. Time
    - Time taken to complete the given task
    - Success rate depends whether the user finishes the task in given time
2. Questionnaire
    - Asking difficulties by rate (giving rating system for example, rating number is 1 to 10, whereas “1” is extremely easy and “10” is extremely hard)
    - Asking satisfaction rate (how much user satisfy the bus functionality) with same rating system above
    - Asking to write any suggestions about ease of use.

Test Procedure

Main Structure:

1. By using mobile phone, open the app and this will be given out to participants.
2. Participants will be given tasks to complete.
3. The time will be measured and recorded when the task is started until is done.
4. Questionnaire will be asked after finishing each session.
5. Complete all the tasks with repeating 3 & 4 (Data collection)

Test Script:

Yoojin: Hello, this is YOOJIN, and I am going to be walking you through this session today. How are you feeling today?

Participants: [Response]

Yoojin: Today, we are here to do some test about usability of "AT Track of my Bus" app.

Before we begin, I will briefly explain about the test. Some tasks will be given to you. The time will be measured in same time and all the actions will be recorded with your permission. But we are not testing you here so if you mistake something it is find. Don't worry and don't be nervous during a session. Also, please response all the questions honestly. We are here to find a problem of app and want to improve the site, so you don't to worry about that you are going to hurt our feeling. If you have any questions during a session, don't hesitate to ask to us. If you would, I am going to ask you to sign a permission form. [Give them permission with pen]

Participants: [Participants sign and we collect the paper]

Yoojin: Do you have any questions so far?

Participants: [Response]

Yoojin: Now we are going to start the test. The app has purpose of tracking your favorite bus in real time. First task is adding the bus stop. We give you bus stop address and stop number. [Give the information sheet] By using this, please add two bus stops and tell me when you complete. Time is measured from now.

Participants: [Show how to add the bus stop] done!

Yoojin: Thank you for doing that. Would you like to answer these questions? [Give them questionnaire about how easy to do it rate 1-10] 1 is extremely easy whereas 10 being extremely hard.

Participants: finished!

Yoojin: Next Task is editing the bus stop name and bus list in the bus stop that you add just now. Could you please show me how to edit those two? And after finish your task, please answer the questions.

Participants: [Show] done! [Answer questions and give them]

Yoojin: Cool, you are doing well now. We have two more sessions to go! Now I want you to check the bus time and where bus is. Please show me how to check that information. And like the same way, rate the task.

Participants: [Show] done! [rate them and give back to us]

Yoojin: Thanks, here is simple last task! Would you like to change the order of monitored bus stop? After that, please rate it!

Participants: [Show] finally done! [rate them and collect]

Yoojin: Thank you so much for your participating. Here are quick questions before we let you go. Could you please give me rating of satisfaction? And if you have any recommend or suggestions, please write down on this paper. [give paper with pen]

Participants: done!

Yoojin: Thank you again. All the test is completed. Thank you very much of your time.

TEST ENDS

Analysis

After completing the test, we can collect the data which are time taken, success rate with given time, satisfaction rate and suggestions/recommendations. By using time taken, success rate will be made. (set the time and evaluate whether success or not, we won't say to participants about success rate because if they know it, then they will rush to do the test to success.) This data shows about ease of use. If the task is easy, average time will be short and success rate will be high. Thus, we can predict the test level and whether test given was easy or not.

But we should check the questionnaire in same time. The satisfaction rate from questionnaire in each task will help to explain us which part of app couldn't satisfy people. Even though success rate is high, satisfaction rate can be low. In this case, we can check the suggestions/recommendations. This could be used to improve user interaction.

By participant's team and group, we can separate the data with those factors so it can compare between teams and groups. The team which are divided by AT card holder/ non-holder shows how much pre-knowledge help to use app. Card holder normally know where they go and where is the bus stop. By comparing with non-holder, we could see how easy to find their bus stop no matter how much they know where is bus stop or not. We expect that people who don't have any bus information are also able to get bus stop easily.

The group which are divided by age shows that any type of people can do the main task easily. Advanced user may do more advanced function with using their skills but we want all people complete task easily.

Between teams and groups, if we use data and compare it, the results will be more clear and we could find the problem (also which part of functions need improvement). So, these data will help us to improve usability of user interface.

Results

As a result, the report will consist of raw data which are time taken, success rate, satisfaction rate and recommendation that has been collected from participants. Through the analyzing of data in the team and group, it is easy to make diagram such as scatter graph, bar graph. This helps to see the results clearer and to represent relationship in one diagram. By using these data, we could evaluate the app whether this is successful app or not. Also, unsuccessful app could be improved by using data analyzing. All this test will help the app to make close with user.

References

http://www.nngroup.com/articles/ten-usability-heuristics/