**Online Activity No. 8 and 9: Applying the User-Centered System Design Process – TEAM SL**

**Objective**

1. Innovate an existing interactive system and computer technology.
2. Perform and apply UCSD.

**Materials**

* Personal computer
* Any software for (Computer aided designs) or programming language

**Background**

Atakan(2006), UCSD is used in the design process. Reasons are evaluated why traditional-technology-focused design processes why it may result in unusable systems-and the consequences of those unusable or useless systems. This leads directly to a consideration of the different methodologies that go to make up a user-centered system design process.

**Procedure**

1. Identify a scope or agenda
2. Format for the document is given below as guide for the designers in the making the output both the document and design.

**Chapter I. Introduction**

**Background of the study**

TriSakay is a tricycle riding app that allows both drivers and passengers to have a more convenient experience when it comes to commuting. For drivers, the app should allow them to more easily locate potential passengers along their chosen route. For passengers, the app should allow them to quickly identify drivers in their area that are along their chosen route so that they can more easily catch a ride. Overall, it should improve local commuting experiences for both drivers and passengers in subdivisions that have available tricycle riders in them.

With that being said, the reason for such a design to be proposed is simply due to the lack of such an app in Davao City. While places such as Manila have apps such as Angkas and Sakay.ph to fill in similar roles, Davao City has no such app that specifically accommodates tricycles. The closest services that fill this role in would be Grab, however, that service is limited to taxis only. Thus, TriSakay aims to help fill in the gap for this role so that passengers and tricycle drivers alike can have more convenience and benefits overall.

**Statement of the problem**

As stated earlier, the primary reason for this design's proposal is to help fill in the gap of not having a convenient commuting app for tricycles here in Davao City. The only service that comes close to filling in the gap would be Grab, however, not everyone is likely to require a taxi anytime they would want to get from their location to their destination, especially if it is within the same general location, enough so that tricycles would be able to reach the said destination as well.

Accordingly, the following are the primary issues that TriSakay aims to address:

1. ***Lack of App***

* Within Davao City, there is a lack of a commuting app that specifically targets tricycle drivers and users that need one, while places such as Manila have similar apps.

1. ***Lack of Inclusivity***

* Taxi drivers have apps such as Grab Taxi that can help them earn more, while tricycle drivers are still forced to use traditional methods in order to find passengers.

1. ***Difficulty Commuting***

* Commuting with tricycles may be difficult, especially for people who are unfamiliar with tricycle routes in certain areas, as well as fares per ride.

1. ***Possible Inconvenience***

* In some cases, it can be difficult to tell if there are any available tricycle drivers/routes in the area.

1. ***Complex User Interface***

* Apps, such as Grab, usually have other extra features on top of its original features, which could cause the app to become more confusing due to the added features.

**Assumption of the study**

In this section, the issues stated above will be addressed through various assumptions and solutions that will be provided by TriSakay, therefore, validating the following design features that will be outlined in this study. With that said, the assumptions made are as follows:

1. ***Fulfillment of the gap for tricycles***

* **Assumption:** No apps accommodate commuting with tricycles, at least, not in Davao City.
* **Feature:** TriSakay will focus solely on accommodating all users that wish to commute with tricycles, as well as tricycle drivers themselves.

1. ***Real-time data for available drivers, passengers and routes***

* **Assumption:** Users would like to be aware of any drivers nearby, vice versa for drivers finding passengers, and routes that they take.
* **Feature:** TriSakay will allow users to view real-time data for drivers in the area, passengers in the area, their current whereabouts, and the routes that they are currently taking, based on their inputs as well.

1. ***Drivers will be able notified of any potential passengers nearby***

* **Assumption:** Users would like to be notified when there are passengers in the area looking for a ride.
* **Feature:** Passengers in the area will be able to notify nearby drivers whether they are looking for a ride, thus, hastening the process for both parties.

1. ***Map view with added routes***

* **Assumption:** Users would like to view all available routes at certain locations, even if they themselves are not there.
* **Feature:** An added map feature will allow users to not only view an accurate and precise map of Davao City using trusted third-party APIs, but also view routes that are available in that location based on user input and data acquired from observation.

1. ***Focus on tricycle commuting only***

* **Assumption:** Users may be displeased with having too many extra features on top of the original feature, that being of commuting for tricycles.
* **Feature:** TriSakay will focus solely on tricycle commuting, which will make the app less confusing and complex for all users, accomplishing being a user-friendly app.

1. ***Simple and straightforward interface***

* **Assumption:** Users may be distracted by a design that is too flashy or artistic, as well as an interface that may be too confusing to look at.
* **Feature:** The overall design will mostly be minimalist, to keep the app straightforward and easier to use, without unnecessary distractions, something simple enough yet striking and not plain.

1. ***Added User Tutorial and Manual***

* **Assumption:** Users may be unfamiliar with the app upon first usage.
* **Feature:** The app will ask the user if it is their first time using the app. If so, the app will immediately provide a simple tutorial showing the flow of the app, from the main feature of finding drivers/passengers, to other available features, such as notifications and map view. In addition, a user manual may be found in the settings of the app.

**Significance of the study**

As stated earlier, the primary niche that TriSakay aims to facilitate are users that wish to commute via tricycle, as well as tricycle drivers themselves. Other relevant organizations that handle tricycles may also benefit from TriSakay. Thus, the following listed below will be the main beneficiaries of this study, with those ranking higher taking priority over those ranked lower:

1. ***Tricycle Drivers***

* As TriSakay is an app dedicated to tricycle commuting, it would be most appropriate for tricycle drivers to be one of the primary beneficiaries for using the app. Although passengers are equally as important to the operation of TriSakay, tricycle drivers can benefit much more from using the app compared to passengers, who use it mostly for convenience, as opposed to the drivers using it to aid their livelihood.

1. ***Passengers***

* Again, as TriSakay is an app dedicated to tricycle commuting, it would be most appropriate to say that passengers who wish to have an easier time commuting with tricycles are also part of the primary beneficiaries of this study.

1. ***Related Government Agencies***

* Agencies such as the DOTC (Department of Transportation and Communications) may benefit from TriSakay by using the built-in map system to more easily monitor and track operational tricycle drivers. While they may not be the intended beneficiaries of this study, due to the nature of TriSakay, they may be counted as secondary beneficiaries instead.

1. ***Non-government tricycle organizations/groups***

* Much like with most sectors, communities, groups, or organizations centered around tricycles may also benefit from TriSakay, since use of the app can allow such organizations to become more prominent, as their business becomes more accessible to other people. It can also help them better understand the operations of other tricycles within certain areas via the routes feature, allowing them to become more organized.

**Chapter II. Research Design**

The design process that the study is modeled after is the User Centered System Design process, which includes the following processes in this study: Task Analysis, Requirements Gathering, Storyboarding and Prototyping, and Evaluation of the prototype. For the task analysis, the research team has created an outline for the tasks that the user should be able to perform according to the current design. In the requirements gathering, the research team has determined that only two sources of data are required to analyze the proposed design, which will be an open-ended feedback portion of a visual, non-interactive design flow of the prototype, and a survey/questionnaire regarding the design based on Nielsen’s 10 Heuristic Principles. As for the storyboarding and prototyping, it was decided that a brief overview of the flow of the app is appropriate enough for contextualizing the design to the user. Finally, the evaluation of the prototype will be the evaluation of the current prototype’s design, which will also be incorporating Nielsen’s 10 Heuristic Principles, conducted only within the research team. With that said, the following below are more details regarding each phase of the design process:

1. **Task Analysis**

For the proposed hierarchical task analysis of the proposed design, the user must be able to perform the following:

1. **Login**

**a.** **Set up an account if none has been created yet**

**b.** **Forgot Password option that sends a notification to the user’s email address**

1. **Access the Home Page**
2. **Able to view four options in the home page**
3. **Locations**
4. **Map**
5. **Notifications**
6. **Routes**
7. **Access to the sidebar**
8. **Same options as stated above**
9. **Logout option**
10. **Search bar**
11. **Notification bell**
12. **Navigate the system**

**a.** **Use the home page for the main features**

**b.** **Use the sidebar to access other features while using one (such as viewing maps)**

1. **View Map**

**a.** **Standard Map**

**b.** **Map with Routes**

**c.** **Map with real-time data on drivers/passengers**

1. **View Notifications**
2. **Logout**
3. **Requirements Gathering**

There will be 2 methods used to gather data regarding the design, for both improvement and meeting user requirements. These methods are the use of surveys/questionnaires and user feedback portions, with surveys/questionnaires being given to the participants taking place first, and feedback from users regarding the design as well as the flow of the app right after. Having the survey/questionnaire be based on Nielsen’s 10 Heuristic Principles and open-ended feedback from the participants for any recommendations they might like to give. The user feedback portion must be conducted immediately after the surveys/questionnaire for participants to fully grasp the design and prototype flow shown to them. Hence, there will be an additional link in the survey/questionnaire about the prototype flow for other participants who have yet to view the design and flow of the app or view it once more for better understanding.

1. **Storyboarding and Prototyping**

A screenshot of a login page

Description automatically generated

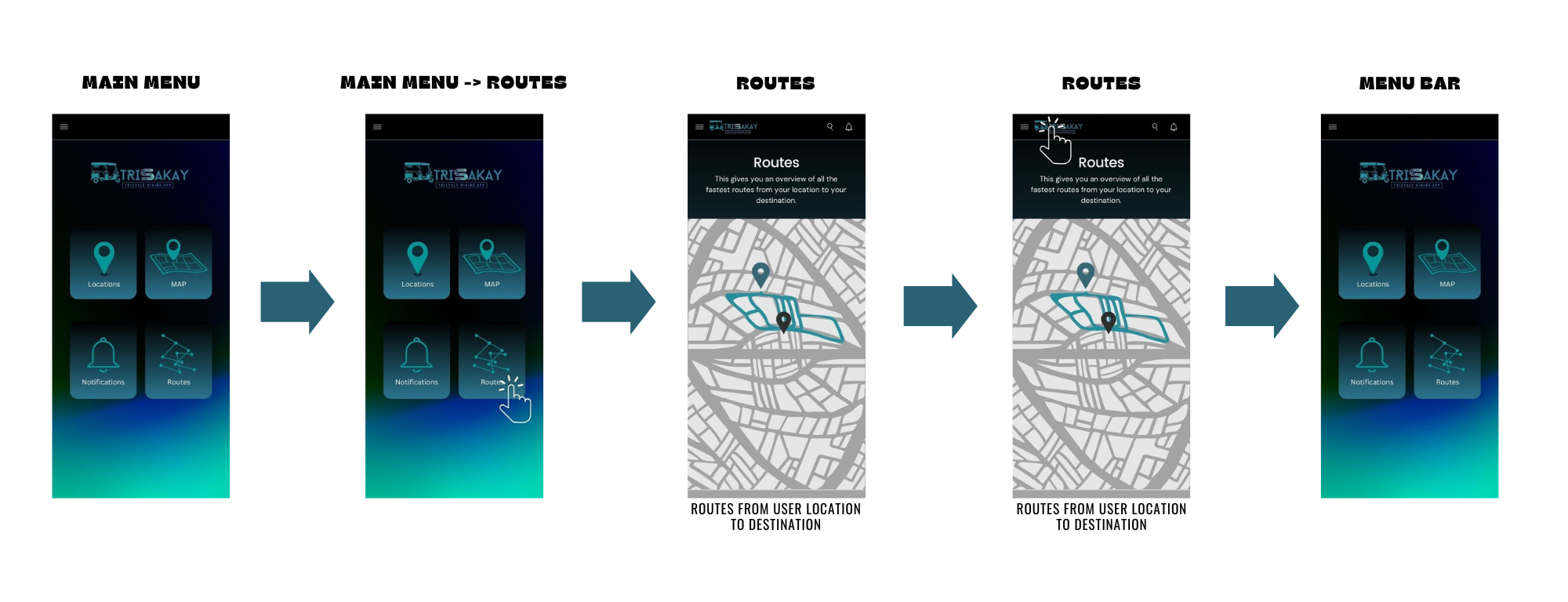
A screenshot of a mobile application

Description automatically generated

A screenshot of a screen

Description automatically generatedA screenshot of a map

Description automatically generatedA screenshot of a cell phone

Description automatically generated

A screen shot of a phone

Description automatically generated

**The prototype of the interactive system** – The system functions as a basic flow of how a vehicle app of this kind would simply work as. The user will start off from viewing the loading screen, to the login/new account/forgot password pages, to the maps, routes, notifications and many more features incorporated.

1. **Evaluation of prototype**

 The following designs as well as the overall designs of the app, as shown below, are graded and evaluated adequately by Neilsen’s 10 Heuristic's of Evaluation:

A screenshot of a phone

Description automatically generatedA screenshot of a login screen

Description automatically generatedA screenshot of a phone

Description automatically generatedA screenshot of a chat

Description automatically generated

Evaluation Criteria (Based on the 10 heuristics of design evaluation)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Area of Evaluation** | **5** | **4** | **3** | **2** | **1** |
| 1. **Visibility of System Status**  * - The system design provides appropriate feedback like message prompts in response to user actions. * The message prompts are clear, visible and understandable. |  |  |  |  |  |
|  |  |  |  |  |
| 1. **Match between the system and the real world**   - Used words, phrases and concepts according to users’ language rather than system oriented words and computer jargons. |  |  |  |  |  |
| 1. **User control and freedom**   - The system design provides ways of allowing users to easily “get in” and “get out” if they find themselves in unfamiliar parts of the system. |  |  |  |  |  |
| 1. **Consistency and Standards**  * - The colors, text, labels, buttons and other elements in the design are uniform from start to finish**.**   - Text and icons are not too small or too big.  **-** Menus and other features of the system are arranged and positioned in a consistent way. (For ex. If your website has navigation buttons on the top under the page title on one page, the users will automatically look there for the same features on other pages. |  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
| 1. **Error Prevention**   - The system design provides an automatic detection of errors and preventing them to occur in the first place.  - Idiot proofing mechanisms are applied |  |  |  |  |  |
|  |  |  |  |  |
| **F. Help users recognize, diagnose and recover from errors**  **-** Error messages and the terms used are recognizable, familiar and understandable for the users. |  |  |  |  |  |
| **G. Recognition rather than recall**  **-** Objects, icons, actions and options are visible for the user.  - Objects are labeled well with text and icons that can immediately be spotted by the user and matched with what they want to do. |  |  |  |  |  |
| **H. Flexibility and efficiency of use**  - The system design provides easy to navigate menus.  - the system does not make wasteful time of system resources. |  |  |  |  |  |
| 1. **Aesthetic and minimalist design**   **-** Graphics and animations used are not difficult to look at and does not clutter (mess) up the screen.  - Information provided is relevant and needed for the system design. |  |  |  |  |  |
| 1. **Help and Documentation**   - The system design provides information that can be easily searched and provides help in a set of concrete steps that can easily be followed. |  |  |  |  |  |

**Chapter III. Conclusion and Recommendation**

The design presented by the team brings utmost importance to how the app overall appeals and functions properly towards user drivers and user passengers alike. With a well-designed and well-built app prototype, it gives users a different feel and connection to how it can bring some benefits to their lives, especially here in Davao City. The app’s design processes considered the concepts learned from the heuristic's evaluation, how to be usable and useful and other topics included in the researchers’ Human Computer Interaction course. Thus, those learnings and new concepts comprehended helped the team further develop a well-designed and well thought out app prototype for their project TriSakay.

Hence, with the prototype in hand, the problems of commuting difficulties, inconveniences, lacking apps and inclusivity within Davao City, including other apps that have complex user interfaces, TriSakay aims to indeed bring about a helping hand to the targeting groups of this app, having drivers and passengers of tricycles alike, benefit from this project, TriSakay.