Project Description

RutaKnows is a user-friendly digital platform designed to help commuters navigate the often confusing and undocumented jeepney routes in the Philippines, particularly in urban areas like Davao City. As jeepneys remain a vital and affordable mode of transportation, the lack of accurate and accessible route information leads to daily inconvenience, especially for tourists, new residents, and even locals. Unlike mainstream navigation apps that rarely include jeepney data, RutaKnows offers a centralized and updated solution that maps out routes clearly, helping users save time, avoid confusion, and make more informed commuting decisions.

Requirements Summary

Minimum Requirements	Processor Cores	Dual-Core
	OS	Android 5.0 (Lollipop) iOS: 11.0
	RAM	2 GB
Recommended Requirements	Processor Cores	Quad-Core
	OS	Android 8.0 (Oreo) or Higher iOS: 13.0 or Higher
	RAM	4GB
Other Requirements	Permissions	Location, Internet

Table 1. System Requirements

The table shows the minimum and recommended system requirements for RutaKnows on Android and iOS. It lists needed specs like processor, OS version, RAM, and connectivity to ensure proper app performance. Minimum specs support basic use on older devices, while recommended specs offer a smoother experience. The app also requires permissions like internet, location, and notifications for accurate routes and updates.

Overview

Due to academic scheduling constraints and the remote nature of the project, user testing will be conducted online through platforms like Microsoft Teams, Discord, or Messenger. The team will schedule guided sessions where participants share their screen while performing tasks using the prototype.

The evaluation strategy was divided into three key methods: Usability Specifications, Heuristic Evaluation, and the System Usability Scale (SUS). Each method played a specific role in thoroughly examining the usability and user experience of the prototype.

Technique	Description
Usability Specifications	Measure efficiency (time), effectiveness (accuracy), and satisfaction (rating).
Heuristic Evaluation	Apply Nielsen's 10 Usability Heuristics to identify UI issues.
System Usability Scale (SUS)	Collect standardized user feedback and interpret usability scores.

Table 2. Usability Evaluation Technique

The tasks designed for this prototype are grouped into three main sections: Navigation Tasks, Route Tasks, and Settings Tasks. These tasks will be performed by participants to demonstrate the core functionality and usability of the system:

Access and Exit the Application (Navigation Task)

Evaluates how easily users can open and close the app, understand the layout, and navigate between main sections such as the Dashboard, Route Suggestions, and Menu.

Search and View Jeepney Routes (Route Task)

Participants will be asked to input an origin and destination, generate a jeepney route, and view details including fare.

Change Display Settings and Give Feedback (Settings Task)

Users will access the settings, saved routes, FAQs, and a feedback form to help users personalize their experience and get support.

These tasks were selected as they represent the core functions of RutaKnows and simulate the typical actions of a user navigating the app for commuting purposes.

Method of Survey and Feedback:

All usability testing was conducted through online platforms, allowing participants to share their screens and perform tasks while team members observed and guided them remotely.

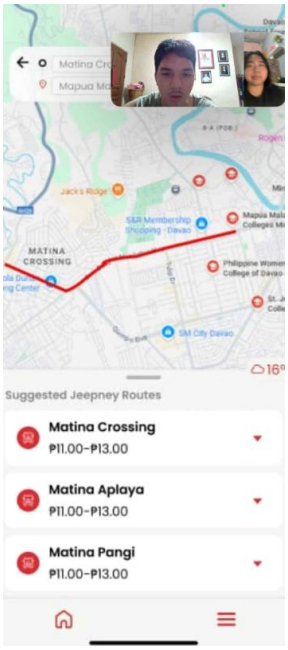

Figure 1. Messenger

Data Presentation

After conducting face-to-face usability testing with selected students and young professionals, participants were asked to interact with the RutaKnows mobile application and perform core tasks including route searching, interface navigation, and accessing app settings. Feedback was collected through direct observation, brief interviews, and the System Usability Scale (SUS) to assess the system's effectiveness, efficiency, and overall satisfaction.

The collected data was then analyzed to identify user behavior trends, task completion times, and any usability issues encountered. Most participants completed the tasks with ease, showing confidence in using the app. While the core functionalities were generally well-received, minor suggestions such as enhancing map visuals and adding clearer labels for settings were noted for future refinement.

Task Category	Average Completion Time	Interpretation	Classification
Launching & Navigation	0.7 minutes	Acceptable	Successful
Route Search & View	1.2 minutes	Acceptable	Successful
Settings & Feedback	1.5 minutes	Acceptable	Successful

Table 3. Task Completion Time

The table shows that all tasks were completed within acceptable time. Users found the app easy to navigate, with slightly longer times for route viewing and settings due to exploration. Overall, RutaKnows was usable and effective, with only minor improvements needed.

Heuristic Evaluation

1. **Visibility of System Status:**
   The app shows clear loading indicators, live map updates, and status messages when fetching routes.
2. **Match Between System and Real World:**
   Uses everyday terms like “Route,” “Pickup Point,” and “Fare,” avoiding technical jargon.
3. **User Control and Freedom:**
   Users can easily go back, clear searches, and cancel route plans without penalty.
4. **Consistency and Standards:**
   UI elements follow Android/iOS standards. Icons and interactions are consistent across all screens.
5. **Error Prevention:**
   Auto-suggestions and dropdowns reduce typing errors during route search.
6. **Recognition Rather than Recall:**
   Past search history and favorites are saved, reducing the need to remember previous input.
7. **Flexibility and Efficiency of Use:**
   Users can switch between map and list view depending on preference. Dark mode is also available.
8. **Aesthetic and Minimalist Design:**
   The interface is clean and focuses only on essential route details and actions.
9. **Help Users Recognize and Recover from Errors:**
   Clear error messages like “Route not found” are provided with suggestions for alternative actions.
10. **Help and Documentation:**
    A Help section includes tutorials, FAQs, and quick tips for using the app effectively.

Participant Survey and Feedback

Survey Results

SECTION 1			
Question	**Mean**	**Interpretation**	**Classification**
I was able to find an appropriate jeepney route based on my selected origin and destination.	4	Highly Acceptable	Very Successful
I understood the suggested route, fare, and travel time displayed on the screen.	3.9	Highly Acceptable	Very Successful
I was able to identify pickup and drop-off points using the map.	3.7	Acceptable	Very Successful
I was able to access information from the Help/FAQ section when needed.	3.5	Acceptable	Successful
SECTION 2			
Question	**Mean**	**Interpretation**	**Classification**
I was able to navigate between the Dashboard, Route Suggestions, and Menu.	3.8	Highly Acceptable	Very Successful
I was able to enable dark mode and adjust font size without difficulty.	3.6	Acceptable	Very Successful
I was able to save or favorite a route easily.	3.4	Acceptable	Successful
SECTION 3			
Question	**Mean**	**Interpretation**	**Classification**
Overall, I found RutaKnows easy to use.	3.8	Highly Acceptable	Very Successful
The app's interface and visuals helped me understand how to use it quickly.	3.9	Highly Acceptable	Very Successful
I would use this app again or recommend it to someone new to commuting in the city.	3.7	Acceptable	Very Successful

Table 4. Data Interpretation

Category	Average Score	Interpretation	Classification
Effectiveness	3.78	Highly Acceptable	Very Successful
Efficiency	3.6	Highly Acceptable	Very Successful
Overall Satisfaction	3.8	Highly Acceptable	Very Successful

Table 5. Average Scores Summary

The data above indicates that users rated RutaKnows as very successful across all usability categories. Its route suggestions, intuitive interface, and navigation system were well-received. Minor improvements may still be considered for certain features like saving routes and customizing settings for a smoother experience.

System Usability Scale

After completing the tasks and initial survey, participants answered the SUS questionnaire. Below are the individual scores:

Participant	Score	Interpretation
P1	90	A
P2	92.5	
P3	87.5	
P4	95	
P5	90	
P6	97.5	
P7	92.5	
P8	90	
P9	95	
P10	93	
SUS Mean Score:	**92.3**	

According to SUS scoring standards, a score above 68 is considered good usability. The mean score of 92.3 indicates excellent usability and reflects that participants found RutaKnows highly user-friendly, intuitive, and recommendable to others.

Design Implication

Based on the results, the RutaKnows prototype is effective and user-friendly, showing no need for a major redesign. The app received high scores in usability metrics—efficiency, effectiveness, and overall satisfaction indicating excellent usability.

However, minor improvements could further enhance the user experience:

- **Organize settings more intuitively** – Group related options together to make adjustments quicker and more accessible.

- **Enhance route labels and instructions** – Use larger fonts, icons, or color indicators to highlight key information and directions.
- **Add a brief onboarding guide** – A quick tutorial for first-time users can help them understand the app's functions faster.

These enhancements, while not critical, would improve clarity, usability, and overall user satisfaction.

Critique and Summary

The evaluation of RutaKnows provided valuable insights into the app's usability and overall performance. One major advantage was the use of diverse techniques such as usability specifications, heuristic evaluation, and the System Usability Scale (SUS), which offered both quantitative and qualitative data. Conducting face-to-face testing allowed for real-time observations of user behavior and clearer understanding of their feedback. These methods ensured that critical commuter actions—like route searching, map interaction, and settings customization—were assessed effectively based on user experience.

However, the evaluation also had its limitations. The participant group consisted mostly of students and young professionals, which may not fully represent the broader user base, especially older commuters or tourists who may use the app differently. Time constraints limited the depth of feedback for features such as real-time GPS tracking or offline route access. Additionally, some usability aspects like voice navigation or error recovery were not tested thoroughly due to the short sessions.

If we were to redo the evaluation, we would design with greater emphasis on real-world commute conditions, such as testing while walking or riding a jeepney to better reflect actual use. We would also include a more diverse group of participants in terms of age, location familiarity, and tech proficiency. Design-wise, we would introduce clearer onboarding for first-time users and conduct A/B testing on certain UI components to determine the most intuitive layout.

With more resources, we would expand the evaluation to include in-depth field testing, long-term usage studies, and detailed accessibility testing. This would provide a more comprehensive understanding of how RutaKnows performs over time and across different commuter profiles. We would also explore integrating analytics to automatically track user interaction patterns and identify problem areas that users might not explicitly mention.