UNIVERSITI KEBANGSAAN MALAYSIA

The National University of Malaysia

TTTK2093
HUMAN COMPUTER INTERACTION

Report 1 :
Project Proposal and Analysis

Project Title :
SiswaRide

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Table of Contents

Abstract....2
Introduction....2
Background....3
Problem Statement....4
Problem Scenario....4-5
Objectives....6
Functions of the proposed application/solution....6
Analysis....7-10
Paper Prototype....11-17

List of Figures

Figure 1 Scenario of problem 1....4
Figure 2 Scenario of problem 2....5
Figure 3 Scenario of problem 3....5
Figure 4 Hierarchical Diagram of SiswaRide....8
Figure 5 Pictures of Paper Prototype Interfaces....11-12
Figure 6 Pictures of User Testing the Paper Prototype Interfaces....17

List of Tables

Table 1 Comparison of Grab, Maxim and SiswaRide Apps....3
Table 2 Functions and Description for SiswaRide....6
Table 3 User and Task Related to SiswaRide....7
Table 4 SWOT Analysis Table of SiswaRide....10
Table 5 Paper Prototype Testing Plan....13

1. Abstract

SiswaRide is a specialized mobile app that is designed for UKM students. It offers a convenient solution in simplifying transportation and helps in navigating the campus and the areas around the university as it might be challenging for some students especially those who are living off-campus. This app connects students for ride-sharing around the campus. By using this app, users can find the fastest, safest, eco-friendly and most affordable transportation such as going to the library or faculty. Think of it as a student-focused Grab, but designed for trips on campus.

2. Introduction

This report presents the development of a paper prototype for our mobile application named SiswaRide. Before entering the full development stage, the paper prototype provides early insights into the functioning and user interface of a system or application.

A prior research addressed the transportation concerns faced by UKM students, pointing up problems including a lack of public transit options, expensive commute, and ineffective time management. For students, juggling their personal and academic lives requires having a dependable and reasonably priced form of transportation. SiswaRide, which was inspired by already-existing ride-hailing platforms, seeks to solve these problems by offering the UKM community an affordable, safe, and easy-to-use option.

This report will offer wireframe and mockup designs, assess user feedback obtained during the prototyping phase, propose interface designs utilizing techniques like A/B testing, and examine the goals and problem statements pertaining to the current transportation systems. Three primary issues are addressed by the prototype: the requirement for affordability, safety issues, and the challenge of effectively scheduling rides. The interface is also tested for two main user groups: passengers (students who book trips) and drivers (students who give rides).

SiswaRide hopes to improve its functionality and design through this user testing and prototyping process, guaranteeing that it offers the best possible transportation experience catered to the particular requirements of the UKM student body.

3. Background

These days, efficient and convenient transportation is essential for students as they have many responsibilities such as attending the lectures and joining extracurricular activities. Getting around a big campus can be hard if you do not have a car. Walking or relying on public transports takes time, and using the Grab app for short rides can be a bit pricey due to peak hours and high demands. SiswaRide app was developed to give convenient transportation solutions that meet the needs of all UKM students.

Table 1 Comparison of Grab, Maxim and SiswaRide Apps

	Grab	**Maxim**	**SiswaRide**
Target User	General public	General public	Only registered students at the university
Service Area	Nationwide	Nationwide	University campus and 5 km radius from university
Drivers	General public with driving license	General public with driving license	Only registered students at the university with driving license
Security	Background checks for drivers, GPS tracking for rides	Background checks for drivers, GPS tracking for rides	Background checks for drivers, exclusive to university students, fostering trust and safety
Pricing	Dynamic pricing based on demand and distance	Dynamic pricing, more affordable than Grab	Student-friendly pricing
Ride Types	Economy, premium and special vehicle options	Economy, premium and special vehicle options	Economy and UniPool (Carpooling)
Payment Types	Cash, cards and online payment	Cash, cards and online payment	Cash, cards ,online payment(qr pay) and points.
Penalty	Additional charge if late than 5 minutes	-	Blacklisting the student if they cancel the ride more than 3 times when the driver has arrived

4. **Problem Statement**

Three main problems identified are :

1. Safety Challenges

Issue: In a traditional ride-hailing setup, there may be anxiety about the identity and reliability of drivers, which is especially pertinent in a university setting where the community is relatively small and tight-knit. SiswaRide app can help address this concern by limiting drivers to registered students.

2. Waiting hours

Issue: Students frequently experience long wait times when trying to secure a ride within campus. This inefficiency can lead to frustrations, especially when students are late for classes or other commitments. A lack of real-time ride availability can exacerbate this issue.

3. High cost and ride services

Issue: For many students, the cost of transportation can be a significant financial burden. Conventional ride-hailing services may not be affordable for frequent short trips, particularly for those on a tight budget.

5. **Problem Scenario**

Scenario 1 : Safety challenges

Figure 1 Scenario of problem 1

Amir is going to the library for a group discussion. He thought of booking a ride because he missed the bus as he just finished eating at the cafe. He taps on the driver's profile picture, unsure whether to trust the unfamiliar face. With a sigh, Amir decides against the ride, pockets his phone, and decides to walk towards the library instead. As he walks, Amir reassures himself, feeling more comfortable with the decision to go on foot.

Scenario 2 : Waiting hours

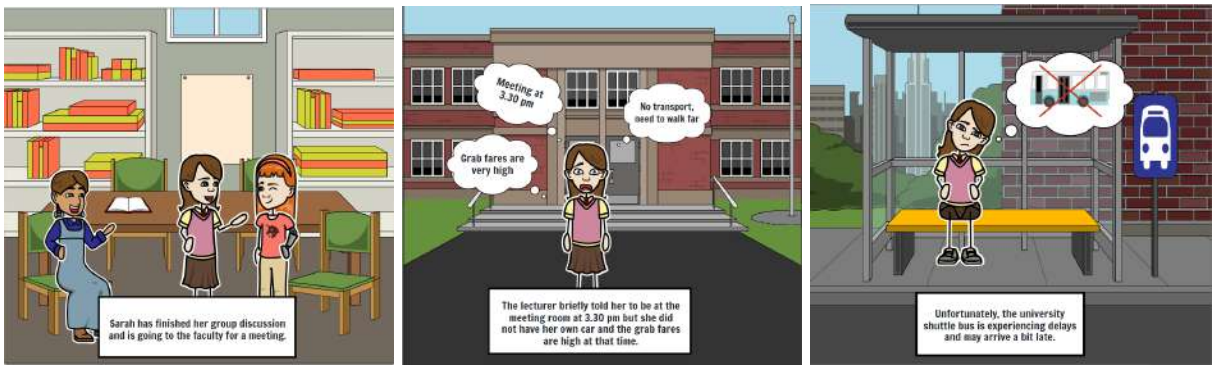


Figure 2 Scenario of problem 2

Sarah is an active member of the Faculty of Technology and Information Science Student Association and often involved in organizing events for the faculty members. Hence, she faced difficulties in transportation due to inconsistent waiting time of the university bus. One Tuesday afternoon, Sarah finished her group discussion in the library at 3 PM and needed to go to the faculty meeting room at 3.30 PM for an event preparation. The campus shuttle services are experiencing delays due to a few problems and it might cause her to be late for the meeting.

Scenario 3 : High cost and ride services

Figure 3 Scenario of problem 3

Qistina is thinking of going to the university library for a study session with her friends, Amir and Dina because the examination is around the corner. She opens the grab app, to book a ride. She stares at her phone screen, frowning at the high fare for the ride to the library. She taps her fingers anxiously on the phone, weighing her options, before shaking her head.After a moment of thought, Qistina puts her phone away and decides to walk to the library, hoping to save money and enjoy the fresh air. She takes in a deep breath as she begins her walk, feeling relieved by her choice.

6. Objectives

1. To cut transport costs with cheaper ride-sharing options.
2. To offer scheduled ride features, allowing students to pre-book rides for specific times, such as before or after classes.
3. To reduce campus traffic congestion as it optimizes ride-sharing among students.

7. Functions of the proposed application/solution

Table 2 shows all the tasks with description for SiswaRide

Table 2 Functions and Description for SiswaRide

Functions	**Description**
Login Page	First time user needs to sign up and fill in information then log in user need to enter student id and password to access the app
Sign up Page	Allow user to enter their details such as name, student id, university, email, gender, date of birth, password and confirm password
Profile	Displaying the information of the user. User can edit their information
Booking service	Allow the user to choose the service that he/she wants (such as economy and Unipool) and allow the user to choose the payment type.
Points	Users can gain points after every booking from SiswaRide
Penalty	Users will be blacklisted if they cancel a booking after the driver has arrived more than three times.
Scan	Allow user to pay via scan with QR pay
Card	Allow user to link their debit/credit cards to make payment
Log out	Allow user to log out and save previous data in the app securely

8. Analysis

a. User and Task Analysis

Table 3 User and Task Related to SiswaRide

	User group 1 (Driver)	**User group 2 (Passenger)**
Task 1 Register/Login	Click Register/Login as driver Step 1: Click button sign up Step 2: Fill in information Step 3: Click Sign up button	Click Register/Login as passenger Step 1: Click button sign up Step 2: Fill in information Step 3: Click Sign up button
Task 2 Book A Ride	Accept Ride Requests Step 1 : View the incoming ride request Step 2 : Accept or decline request	Click Book A Ride Step 1: Choose preferred pickup location Step 2: Enter drop-off location Step 3: Confirm ride details
Task 3 Track the Ride	Update the Ride Status Step 1 : Start the ride Step 2 : Update progress of the journey Step 3 : End the journey ride	Click Track Ride Info Step 1 : Access track information/details Step 2 : Monitor real-time location of the driver
Task 4 Type of Payments	Click Complete Payment Step 1: Confirm payment received	Click Receive Payment Step 1 : Choose payment method Step 2 : Confirm payment after the ride is completed.
Task 5 Driver Rating	Click View Rating Step 1 : Access rating and passenger feedbacks on profile	Click Rate Driver Step 1 : Select rating Step 2 : Provide optional feedbacks about drivers

b. Domain analysis

Figure 4 Hierarchical Diagram of SiswaRide

c. SWOT Analysis

Based on the SiswaRide application, there are several strengths that have been discovered and one of them is its community-centric design. The app provides a secure and reliable environment for UKM students alone. SiswaRide also provides reasonably priced ride options, with reduced prices designed to fit student budgets. Including ride-sharing options also encourages environmental sustainability and economic savings.

One of the app's limitations is that it may only be used by UKM students and on campus, which limits its applicability outside of the university. Additionally, it necessitates continuous internet access, which could be problematic for individuals with poor connectivity.

The increasing use of cashless systems presents opportunities for SiswaRide since it enables students to easily book and pay for rides via the app. Real-time ride tracking and availability alerts present another chance to greatly increase user happiness and cut down on wait times.

Threats to the app's success do exist, though. Preference for established ride-hailing services, which can already have a devoted customer base, is one danger. Another risk is that students can be reluctant to embrace a new system, particularly if they are accustomed to more conventional modes of transportation like walking or taking public transportation.

Table 4 SWOT Analysis Table of SiswaRide

Strength	Weakness
● **Safety measures** Having both drivers and passengers as university students creates a safer environment compared to public ride-sharing apps. ● **Convenience** Solves the university's transportation issues, such as limited parking or public transport availability. ● **Cost-effective** Offers affordable rides as users share costs within a smaller community.	● **Limited Applicability** The app can only be used by UKM students and is restricted to on-campus use, limiting its functionality outside the university. ● **Competition with Established Services** Established ride-hailing platforms may already have loyal users and superior features, posing a challenge to gaining traction among the target audience. ● **Dependence on Student Drivers** Relying on student drivers might lead to inconsistent availability during busy academic periods, such as exams or holidays.
Opportunities	Threats
● Take advantage of consumers' increasing inclination for digital payments, eliminating the need for cash transactions ● Instantaneous tracking and alerts to cut down on wait times and boost user satisfaction. ● Encourage student networking by facilitating ride-sharing and interactions between drivers and passengers.	● **Dominance of Established Ride-Hailing Platforms** Established apps like Grab and Maxim already have a strong foothold with loyal users and comprehensive features which making it more difficult for SiswaRide to compete ● **Limited Availability of Student Drivers** Reliance on student drivers can lead to inconsistent service particularly during exam season or semester break where there are less students that are available during those periods. ● **Low Adoption Rate Among Students** Some students might be reluctant to switch from traditional transportation getting around campus like walking, cycling or using buses than switching to a new platform like SiswaRide for their transportation needs.

9. Paper Prototype

a. Design Paper Prototype Interfaces

Figure 5 Pictures of Paper Prototype Interfaces

b. Testing Paper Prototype Interfaces

Brief to the selected group members about the testing purpose and how many task they need to perform. Assist the selected group member during the testing processes.

Table 5 Paper Prototype Testing Plan

	User	Driver
Task 1	Register/Login Step 1: Click "Click here" Step 2: Fill in information Step 3: Click "SIGN UP" button Step 4 : Click radio button "Passenger mode" Step 5: Enter Student ID/Email and password Step 6: Click "Login" button	Register/Login Step 1: Click "Click here" Step 2: Fill in information Step 3: Click "SIGN UP" button Step 4 : Click radio button "Driver mode" Step 5: Enter Student ID/Email and password Step 6: Click "Login" button
Task 2	View/Edit Profile Step 1 : Click button profile on the top left Step 2 : Click button "Edit Profile" Step 3 : Fill in information Step 3 : Click button "Done"	View Ride History Step 1 : Click button "RIDE HISTORY" Step 2 : There will appear all rides history that have been completed and cancelled. Click the button "<<<" after done reviewing.
Task 3	Setting Step 1 : Click Arrow ">" on Ride History Step 2 : Click button "Close" Step 3 : Click Arrow ">" on SISWARIDE Password Step 4 : Fill in required informations Step 5 : Click button "SUBMIT" Step 6 : Click radio button "English" or "Bahasa" to choose preferred language Step 7 : Click button "Delete	Setting Step 1 : Click button "SETTINGS" Step 2 : Click the combobox under "SELECT LANGUAGE" label to select language Step 3 : Click the combobox under "SELECT REGION" label to select region Step 4 : Tick the checkbox under "PRIVACY" label to set your privacy preference Step 5 : Click the button

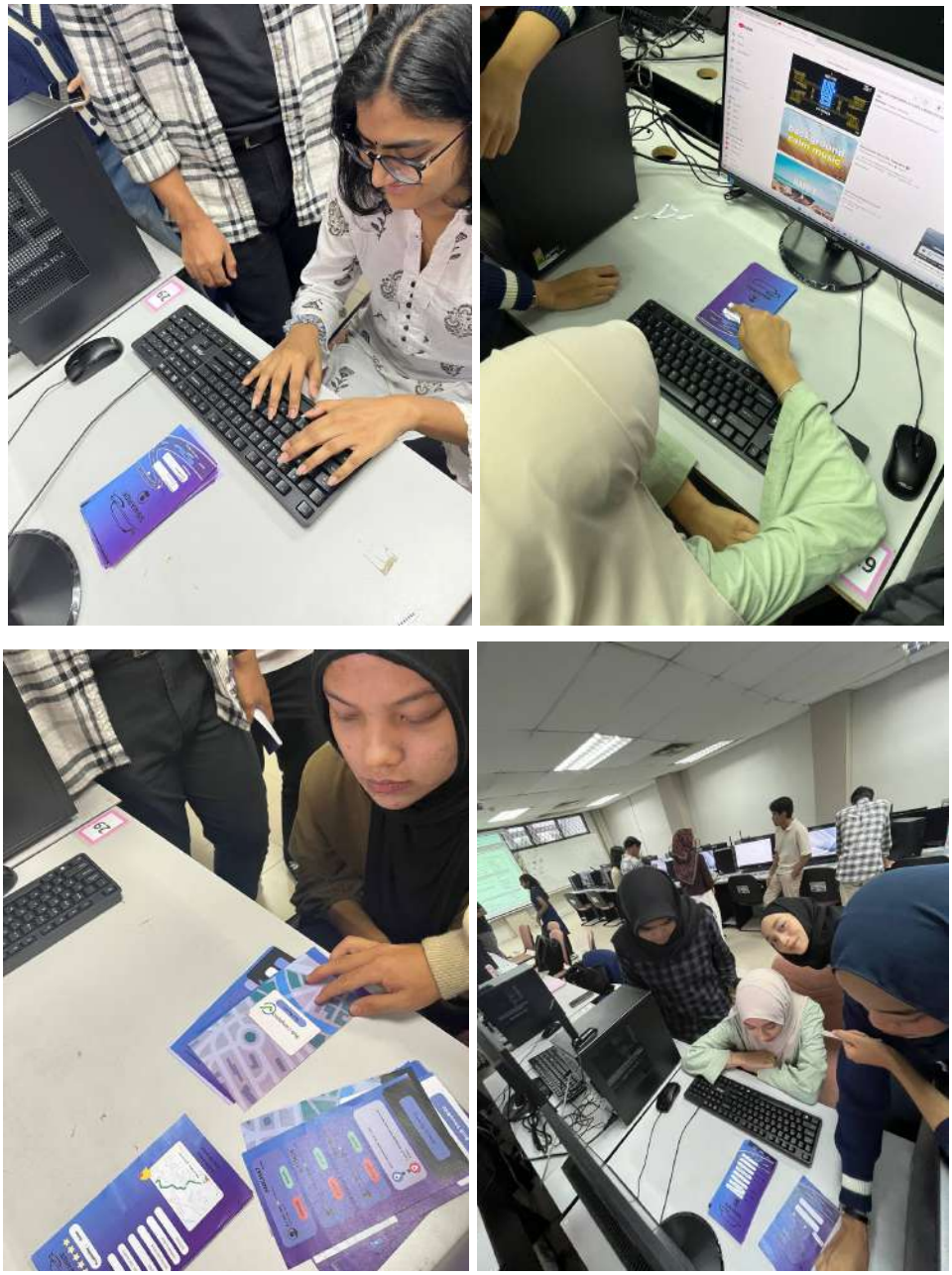
	Account” Step 8 : Fill in information asked Step 9 : Click button “CONFIRM” Step 10 : Click button “<--” on top left to close setting	“<<<” after done
Task 4	<u>Report</u> Step 1 : Click the button report “!” Step 2 : Fill in the information Step 3 : Click button “SUBMIT” Step 4 : Click button “<--” on top left to close report	<u>Notifications and Alerts</u> Step 1 : Click button “NOTIFICATIONS AND ALERTS” Step 2 : Tick the radio button under “Ride Requests Alerts” to select sound for the Ride Request notification Step 3 : Tick the radio button under “Earnings Alerts” to select sound for earnings notification Step 4 : Click the button “<<<” after done
Task 5	<u>Book Ride</u> Step 1 : Click button book ride on middle bottom Step 2 : Click button “Recent” to show recent location Step 3 : Click button “Suggested” to see suggested location Step 4 : Click button “Saved ”to see saved location Step 5 : Click button “+ Add new” to save new location Step 6 : Fill in Name and Address Step 7 : Click Save Address Step 8 : Click button “<--” to go back Step 9 : Click calendar button to choose date of the ride (if want to schedule ride earlier) Step 10 : Choose the destination. You can choose	<u>Accept Ride</u> Step 1 : Click the combobox on top right of the main page to select availability. Step 2 : After you have been assigned with the passenger, click “Accept Ride Request” to proceed to the ride or click “Decline Ride Request” to refuse for the ride Step 3 : After you click “Accept Ride Request”, you will proceed to page where you can start the ride.Click button “Start Ride” Step 4 : You will be redirected to the page where there is ETA for the ride. Step 5 : Click button “<<<” Step 6 : Now , you will be shown a screen while you are on the ride. Click the “End Ride” button and click “x” on

	from map or type in the space given Step 11 : Click button “Choose This Destination” to proceed Step 12 : Tick on “Personal ride” or “Share ride” to choose ride option Step 13 : Click the payment option Step 14 : Choose the payment method on “Linked Methods” Step 15 : Click button “<--” Step 16 : Click button “Book SiswaRide” Step 17 : Choose the driver by click button “ACCEPT” Step 18 :If you want to cancel book, click button “CANCEL REQUEST” Step 19 : Click button “KEEP SEARCHING” or “CANCEL REQUEST” Step 20 : After Ride completed, click button “Give Review” Step 21 : Select the star option and write the review. Step 22 : Click button “SUBMIT”	the popup “Ride Completed” screen to end the ride. Step 7 : Click the “Confirm Payment” button after the payment has been completed and click “x” on the popup ”Payment Received” screen. Step 8 : Click the “View Rating Details” button. The popup screen will show the rating and review your passenger leave. Click “x” to close the popup screen Step 4 : Click the “<<<” button after done
Task 6		<u>Earnings</u> Step 1 : Click “EARNINGS” button Step 2 : You will be redirected to the screen where it shows all your current earnings and monthly earnings. Step 3 : Click the “<<<” button after done reviewing
Task 7		<u>Rating & Reviews</u> Step 1 : Click the “RATING & REVIEWS” button.

		Step 2 : You will be redirected to the screen where it shows all your passenger ratings and reviews. Scroll down to see past ratings and reviews. Step 3 : Click the “<<<” button after done reviewing
Task 8		<u>Support & Help</u> Step 1 : Click “SUPPORT & HELP” button Step 2 : You will be redirected to the screen where it shows safety guidelines , contact support and FAQ for drivers. Step 3 : Click the “<<<” button after done

c. Evaluate Paper Prototype Interfaces

Figure 6 Pictures of User Testing the Paper Prototype Interfaces



Apps Prototype Video

Please refer to the given link for the SiswaRide Apps prototype video.

https://drive.google.com/file/d/1Aeez97WNvjOtRVOcqCUJHUqZ37a_QBmx/view?usp=sharing