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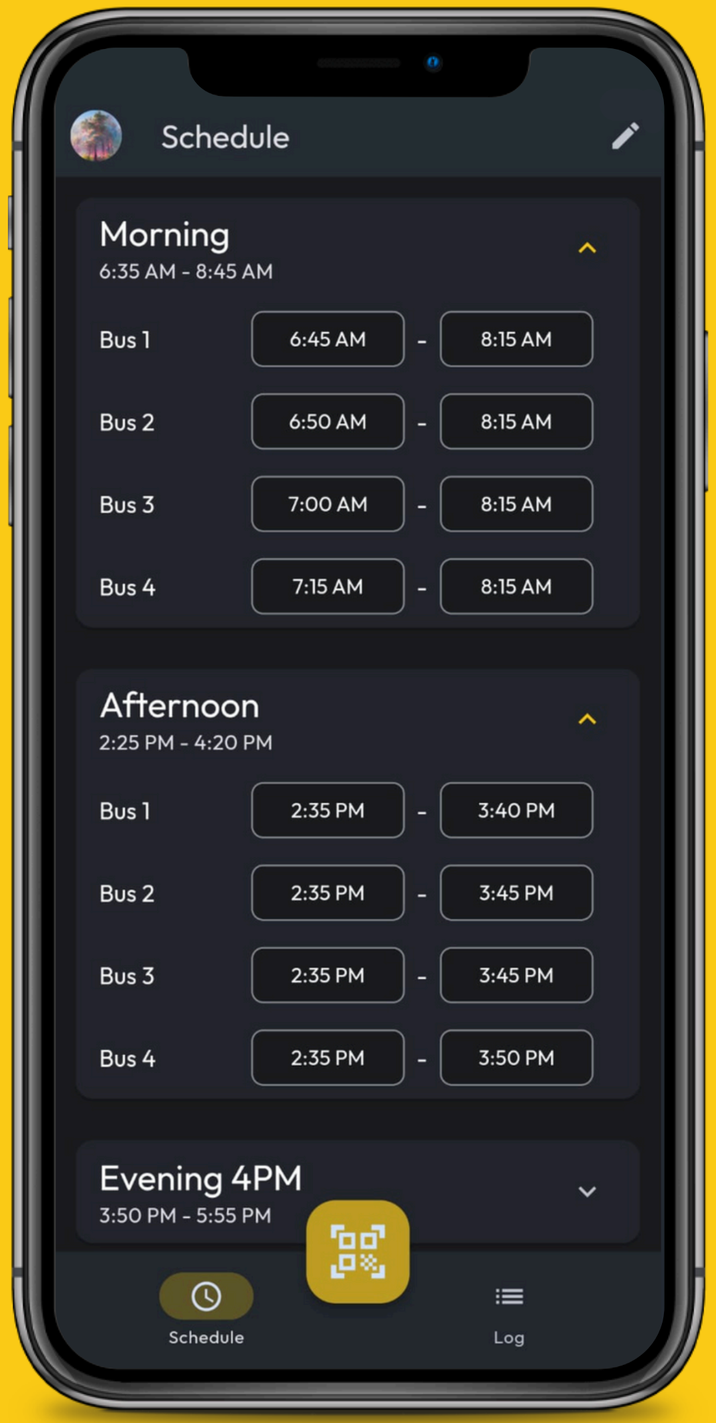
Tobuz

A BUS LOGGING AND MANAGEMENT APP



Schedule Page

INTRODUCTION

What is Tobuz?

- Tobuz is a bus logging and management application.
- It automates the process of recording the bus arrival and departure timings instead of the conventional manual paper-based entry.
- The current prototype is semi-automatic. Logging of bus timings is done through the app, which enables the user to scan QR codes which are to be stuck on the buses.

Features

Scan **Manual Entry** **Schedule** **Configuration** **Log**

THE IDEA

How did we come up with it?

- After joining the Computer Science stream, we wanted to make an app, hoping to use and develop our skill set.
- Moreover, all of us wished to create an app which would be of relevance to our school.
- We understood that an important purpose of technology is to make manual, repetitive, and time-consuming jobs more efficient and accurate.
- We concluded that the manual work of recording the bus timings could be automated.

DEVELOPMENT

How did we implement this idea?

01 - Sketch

Brainstormed for ideas and made a sketch of basic looks like and functionality of the app.

02 - Framework & Wireframe

Picked Flutter as front-end framework, created a wireframe as the barebones of the app.

03 - UI & Basic Functionality

Worked on the user interface, made it presentable, and then added basic functionality.

04 - Feature set

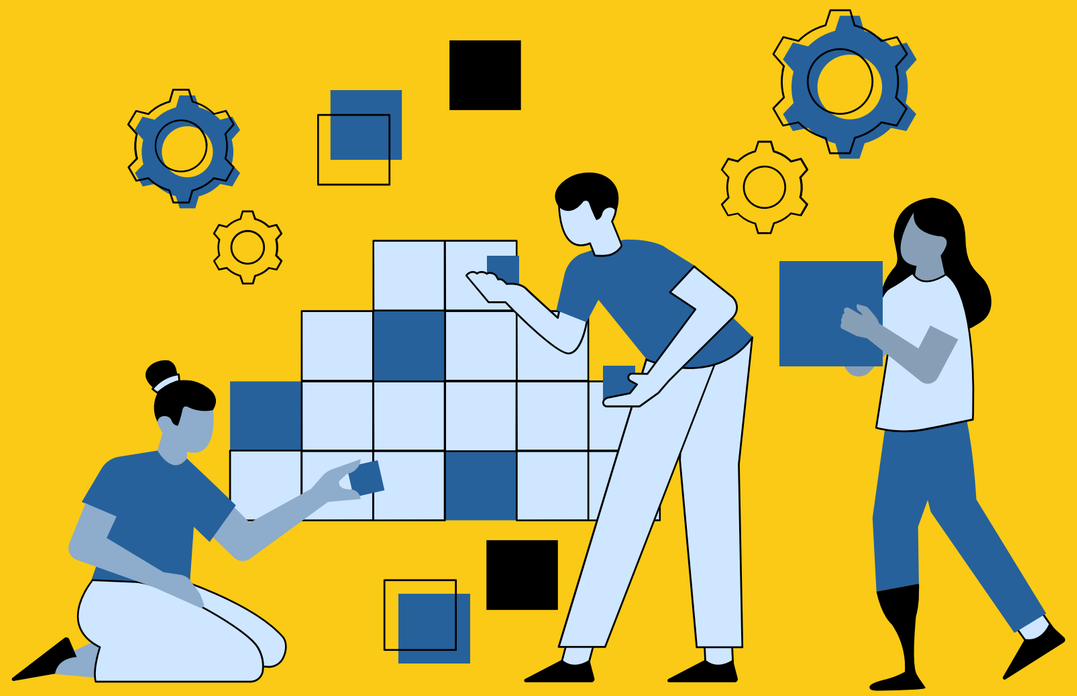
Added more features, and made the existing ones better and more accessible.

05 - Storage

Used *Cloud Firestore*, Google's database solution, to store data.

06 - Authentication

Added *Google Sign-in,* and created security rules to control access



TECHNOLOGY

What did we use to build the app?

Framework

We used *Flutter* to develop this app as it is easy to set up and work with.

Programming Language

We utilized the *Dart* programming language as it is the language Flutter uses.

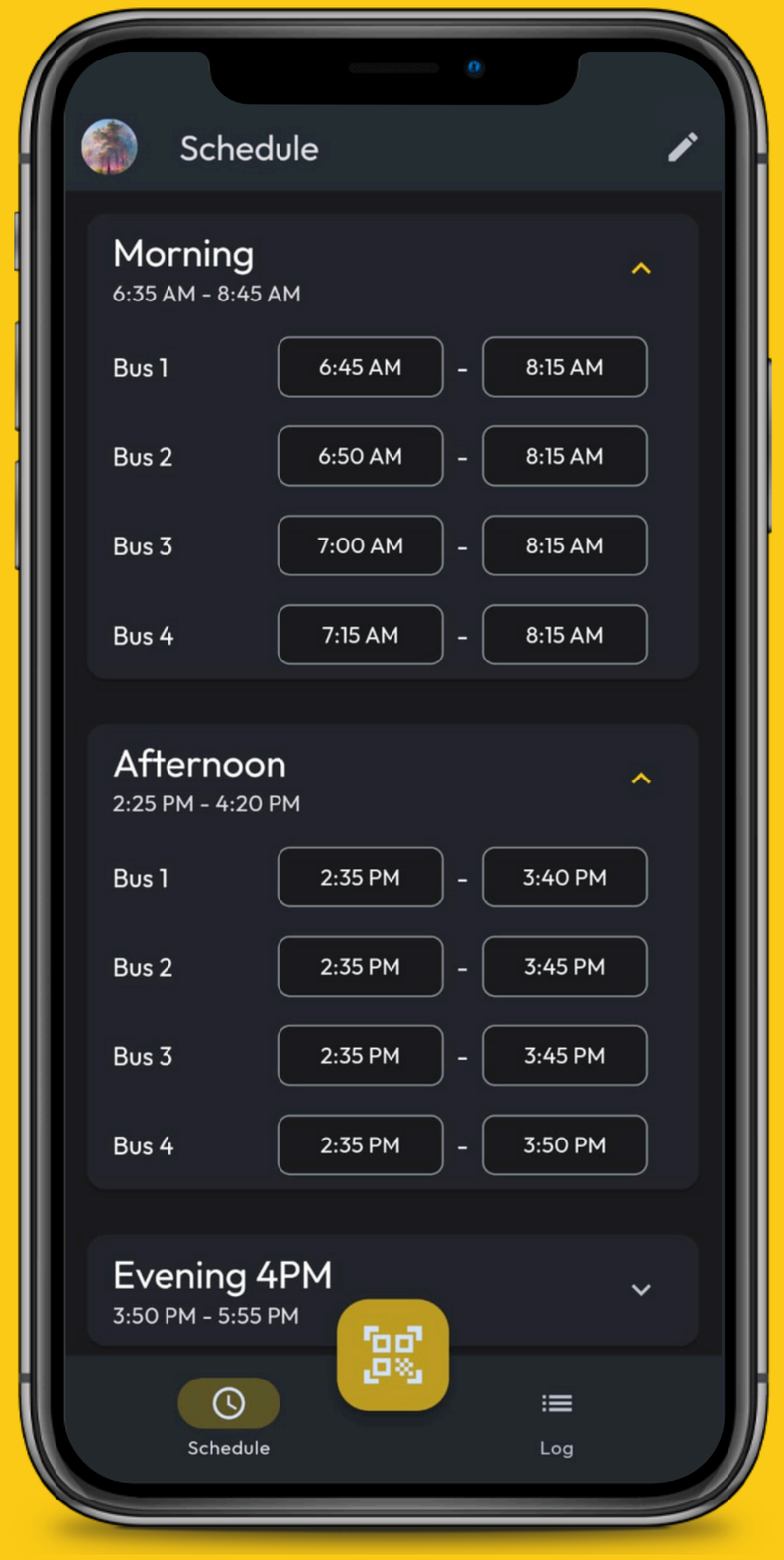
Backend

For backend data storage, we used *Cloud Firestore*. This makes syncing data over the internet simple.

FEATURES

01 Schedules

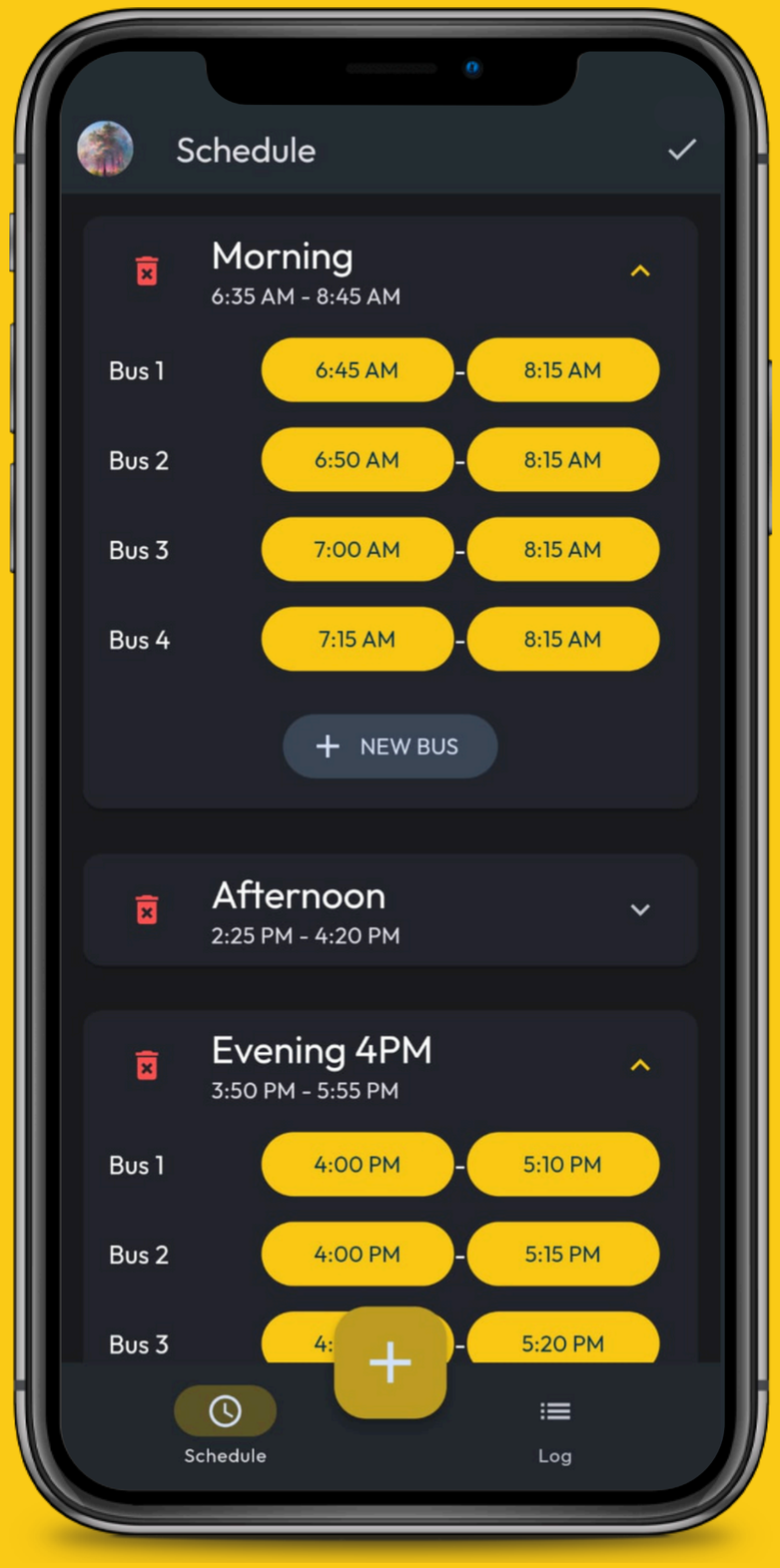
- Institutions have batches of different buses coming and going at different times.
- We have modelled this as “*schedules*”, which are collections of the expected arrival and departure timings of the buses.
- These expected timings are displayed on the *Schedule Page*.



FEATURES

02 Configuration

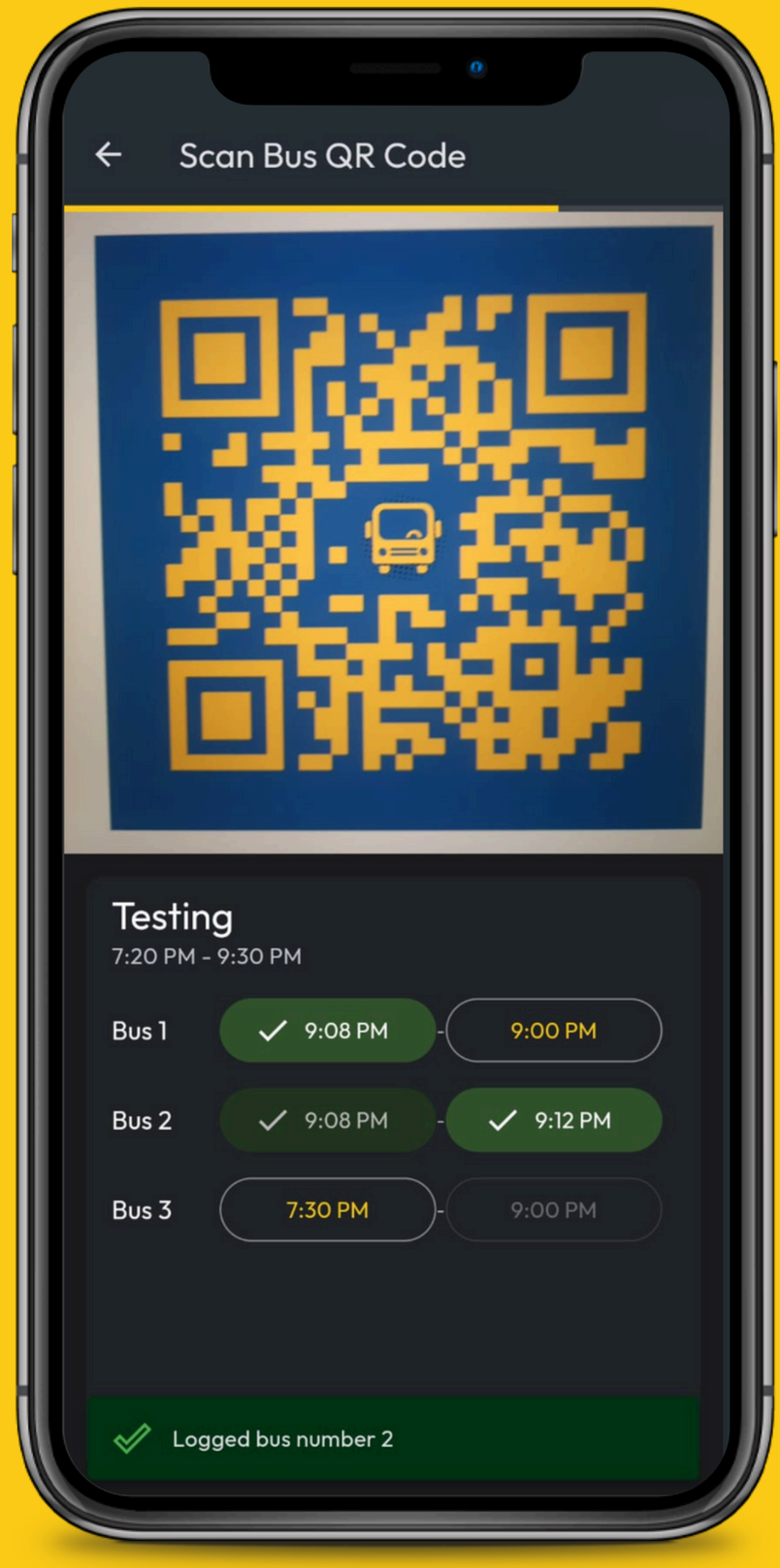
- The schedules can be edited via the Configuration Page by the admin.
- The admin can add schedules, add buses to those schedules, and also remove buses or schedules if required.



FEATURES

03 Scanning

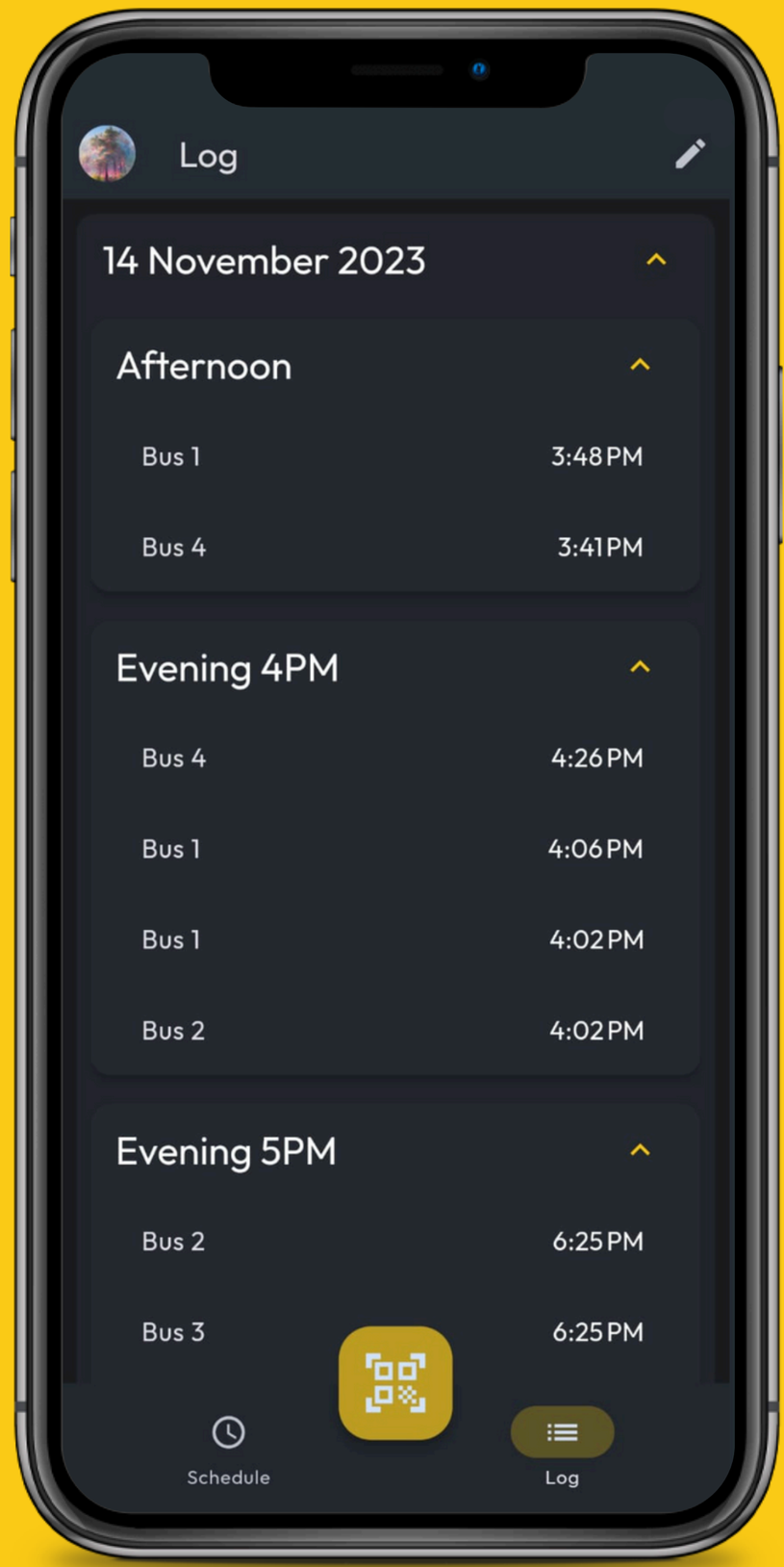
- The scan page reads the QR codes of the buses which have encoded bus numbers. When the QR code is scanned, the time of arrival/departure of the bus is logged.
- In a case where the QR cannot be scanned by the user, the page also allows users to manually log the buses.



FEATURES

04 Logging

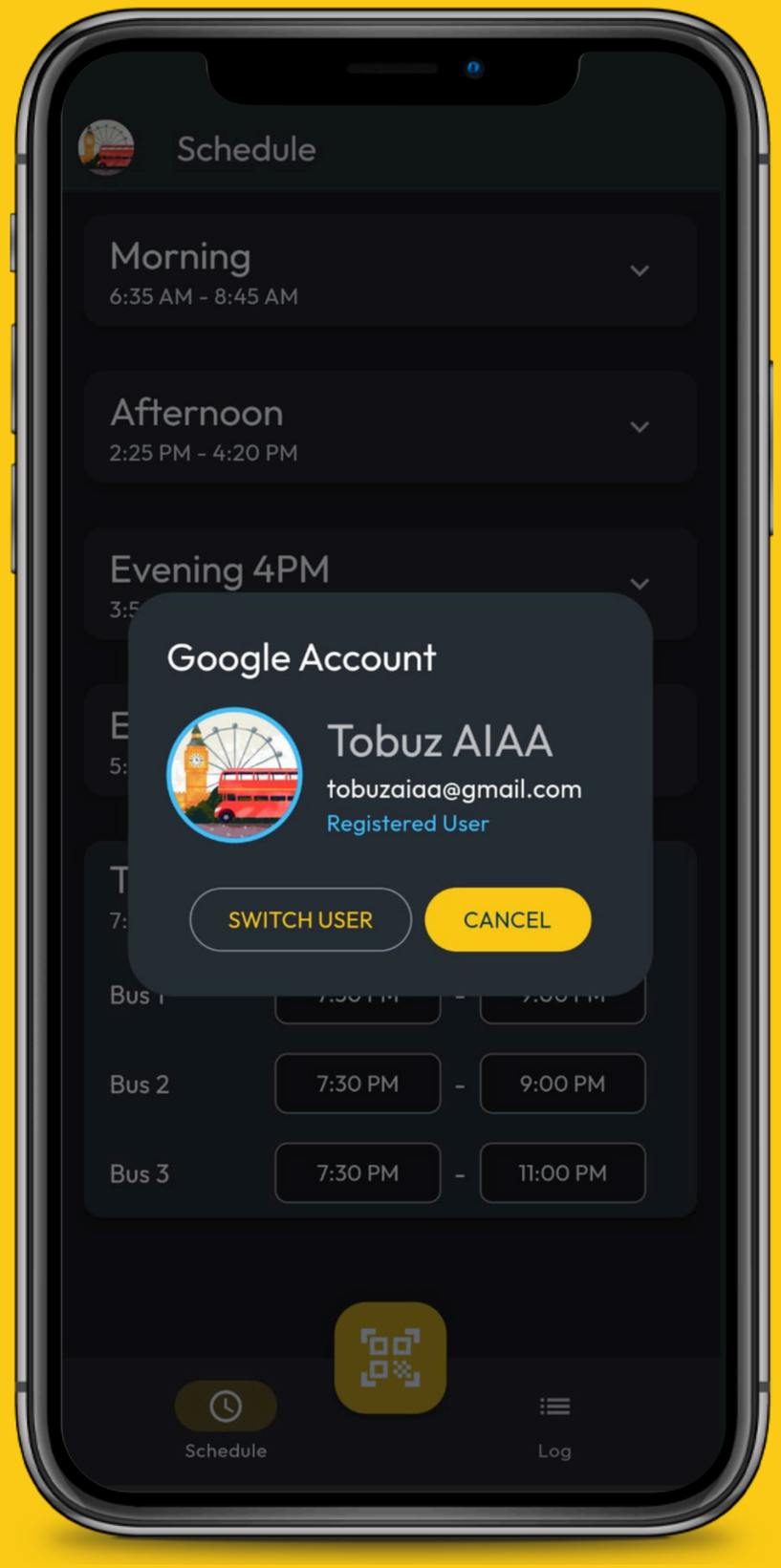
- The recorded bus arrival and departure timings appear on the Log Page and are displayed in reverse chronological order, sorted and grouped by date and schedule.
- The logged data is stored in the cloud database, so they can be accessed by the transport management in real-time.



FEATURES

05 Authentication

- The app requires you to sign in using a Google account.
- Any data can only be accessed if the account is a registered user.
- Configuration is only accessible to the accounts that are registered as administrators.



THE FUTURE

Future updates we envision

Location Tracking
Live location of the buses for the school using GPS.

Automation
Full automation of scanning by using a mounted camera module at the entrance

Speed Tracking
Calculate the speed of buses with GPS and send reports.

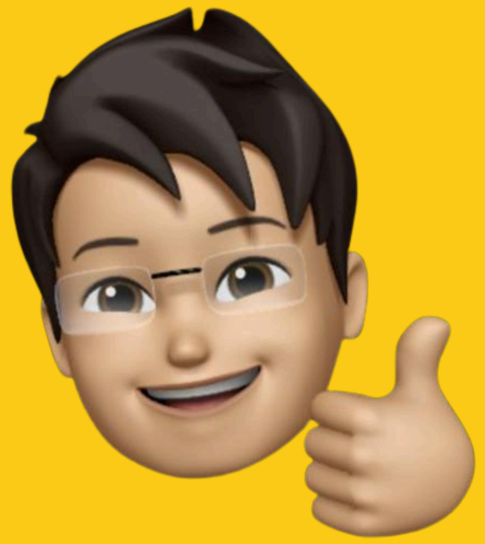
Equipment & Staff Info
Info about bus drivers and conductors, along with phone numbers as well as details about each bus.

Routes
Add *routes,* that have all the bus stops, to whom buses and staff can be assigned.

Expansion
Expansion to other schools and institutions

GROUP

Meet our team



Ilesh Kedharanath Thiada

Lead developer &
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Project lead &
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Aiyana Diwan Gopalan

Designer &
Functionality supervisor

Live Demonstration

THANK YOU