



The Breathalyser Connection

Final Year Project Presentation

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THE BREATHALYSER CONNECTION

TABLE OF CONTENT

- 01 INTRODUCTION**
- 02 HARDWARE DESIGN**
- 03 ARCHITECTURE
DIAGRAM**
- 04 TIMELINE**
- 05 SOFTWARE**

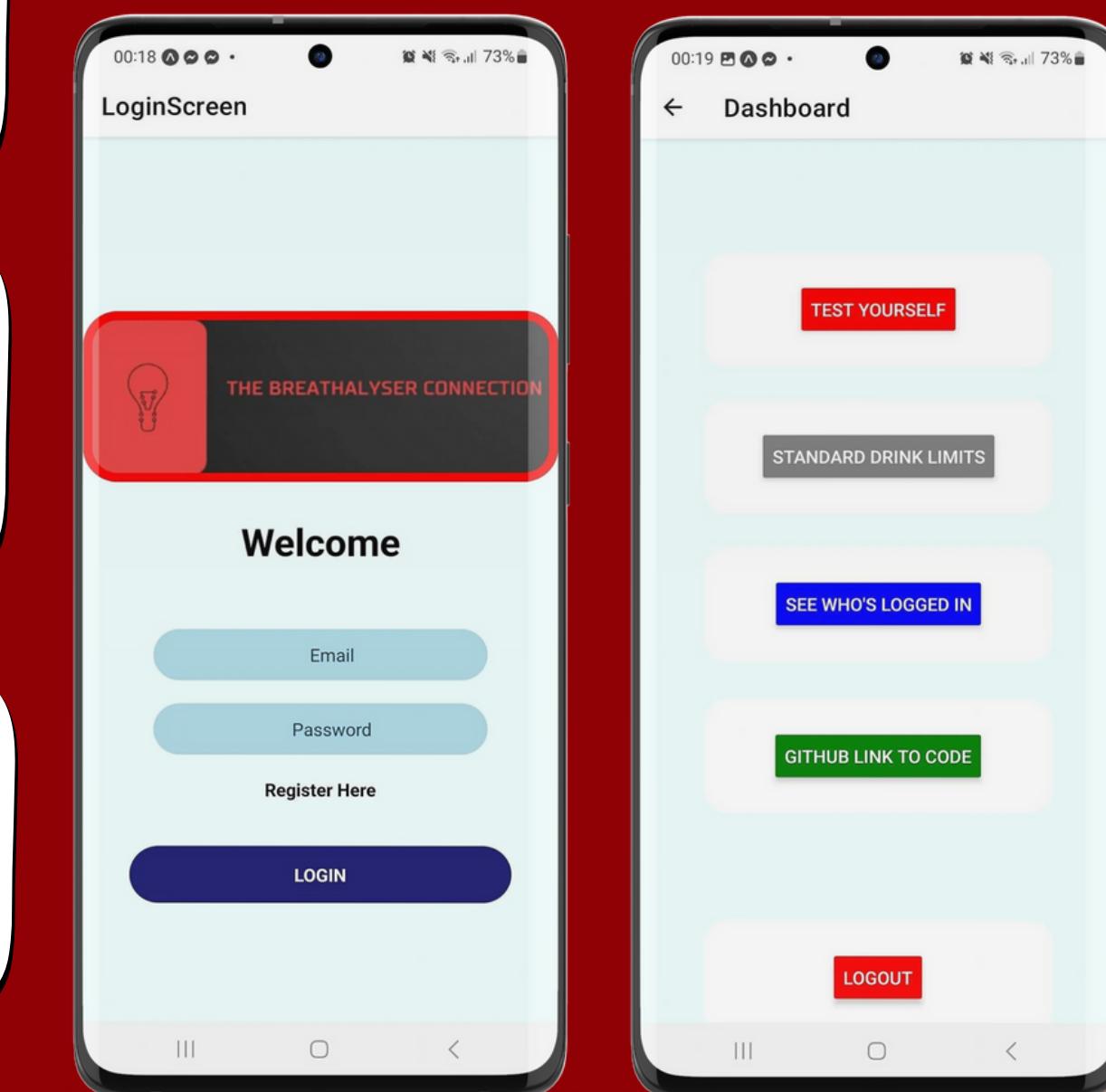
INTRODUCTION



The Breathalyser Connection is a diagnostic device that can help you evaluate the amount of alcohol present in your exhaled air. Its primary purpose is to estimate your blood alcohol content (BAC) accurately and efficiently.

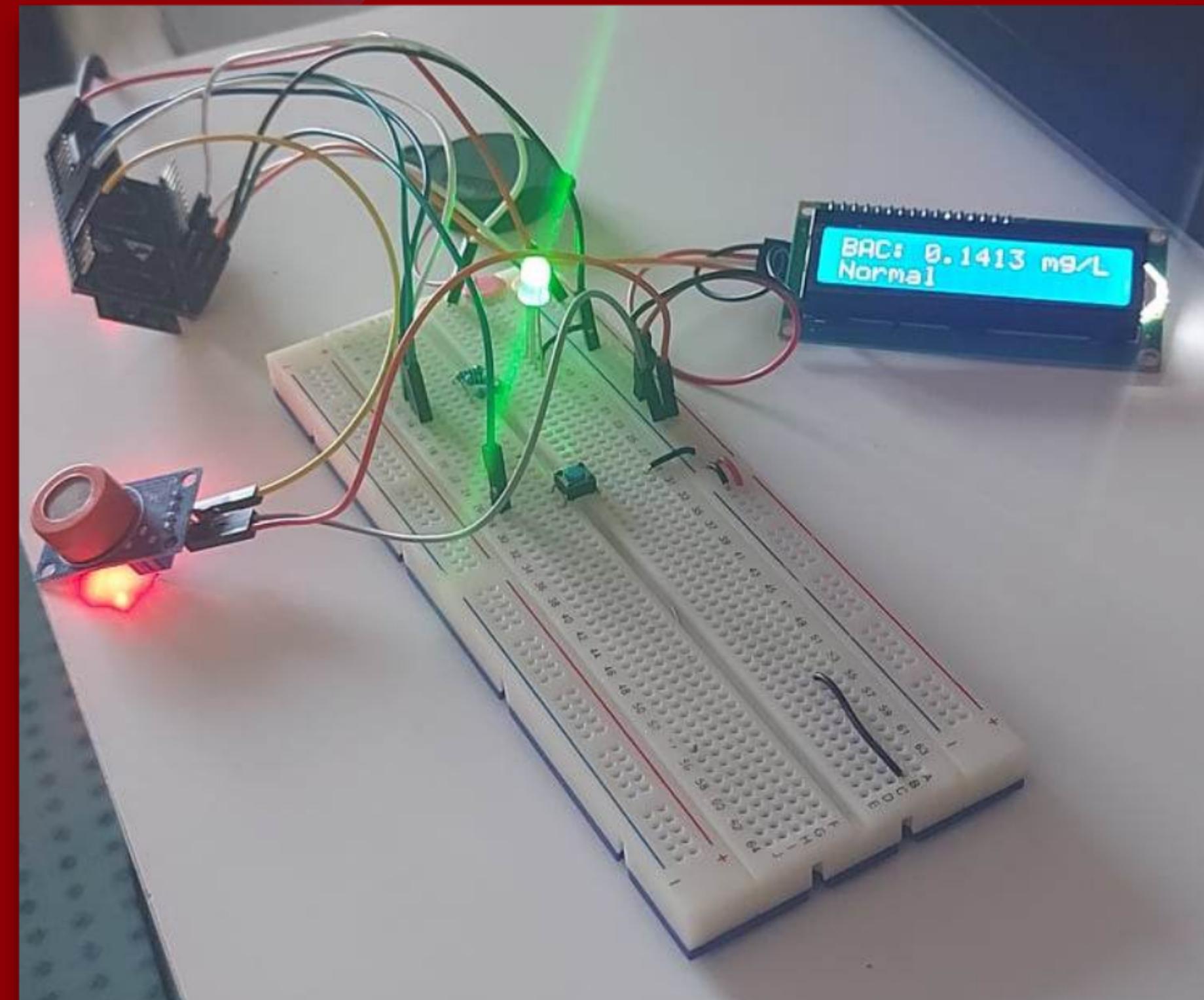
Contains both hardware and software configuration using various components to alert users of your test results and it is powered by the high-performance ESP32 microcontroller, which comes with built-in WiFi connectivity.

You can access a personalised mobile application that has been developed using React Native. This application provides you with a user-friendly environment to log in and monitor your latest test results.



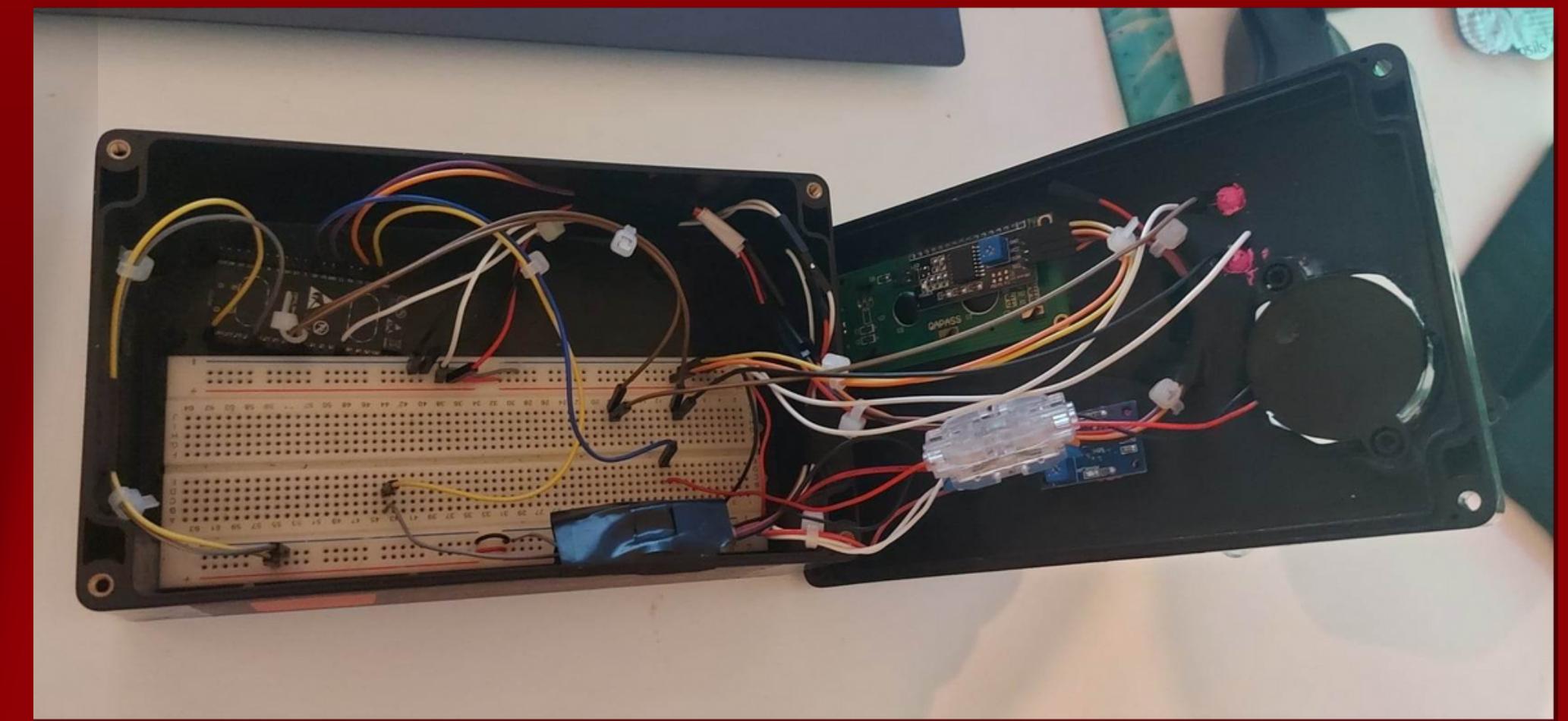
HARDWARE DESIGN

BEFORE



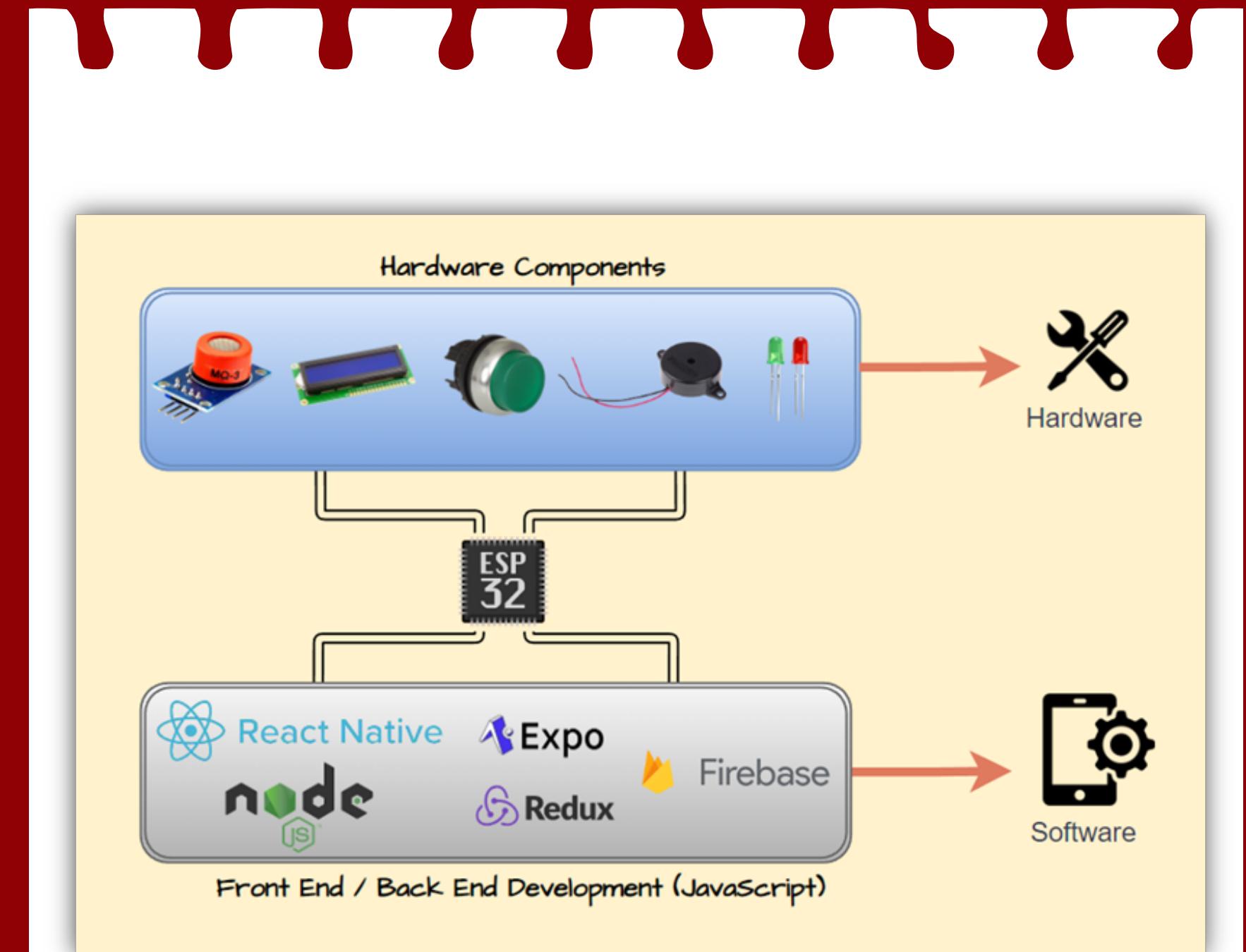
HARDWARE DESIGN

AFTER



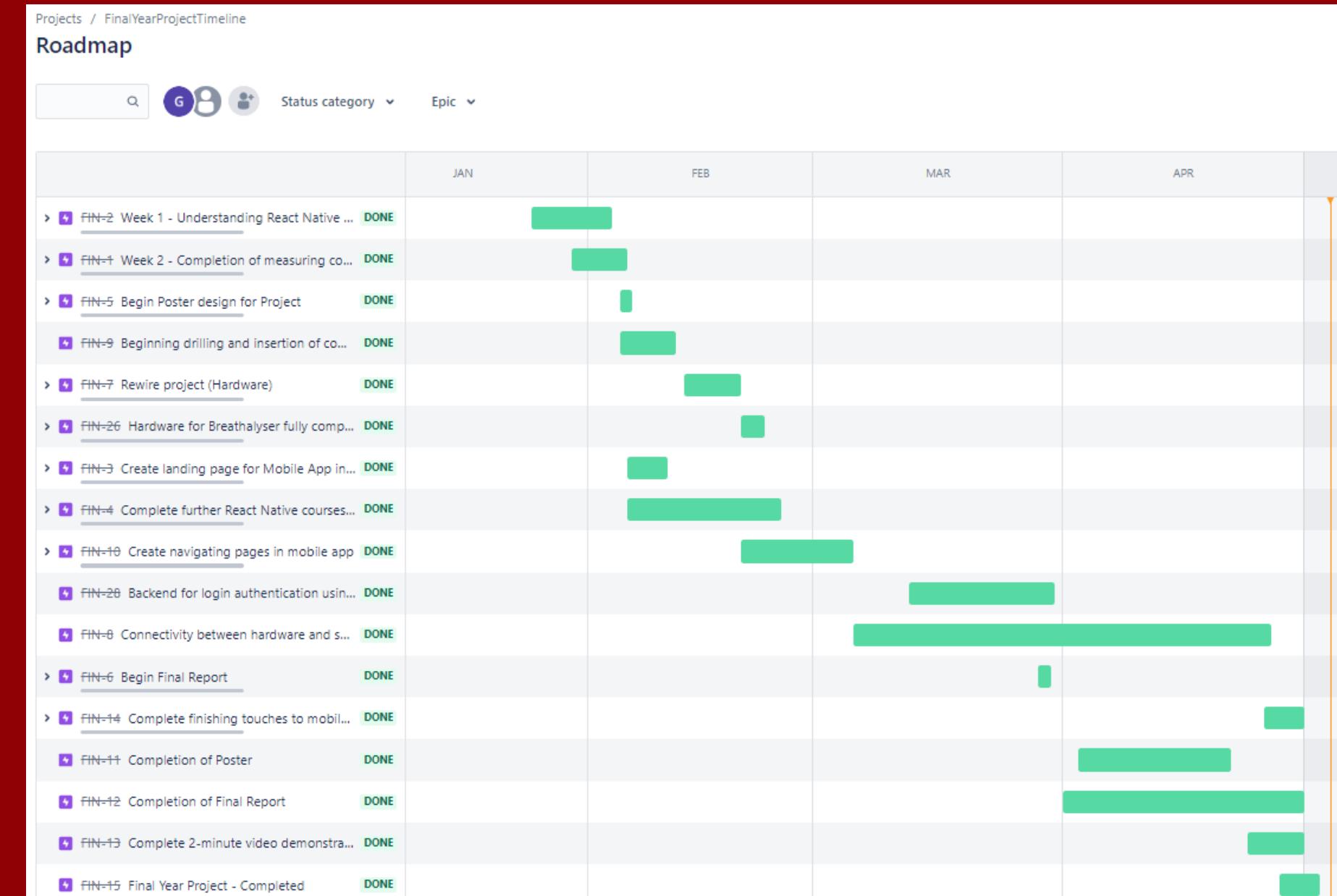
ARCHITECTURE DIAGRAM

I updated the architecture diagram that I presented during the Christmas demonstration by incorporating the new features which were integrated into the project in the second semester. In the first semester, I accomplished the hardware development phase and subsequently concentrated on designing and measuring the box enclosure that accommodates the components. I also incorporated the Firebase configuration for establishing login authentication and transmitting data collected by the device to deliver Blood Alcohol Content (BAC) results, which were then displayed on the mobile app.



TIMELINE

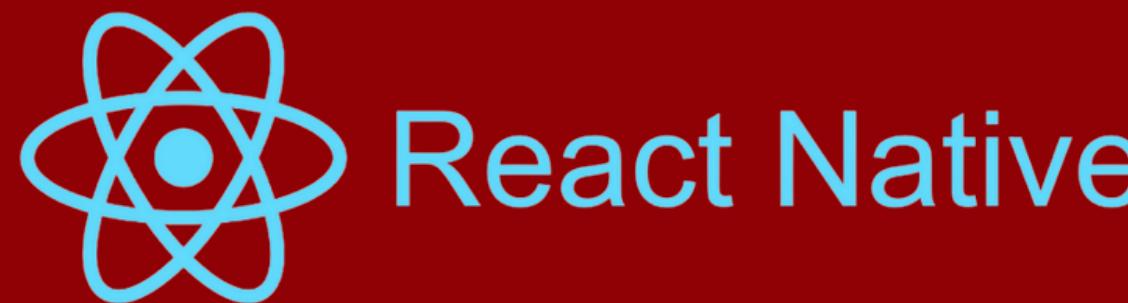
Final Year Project - Timeline - Updated May 2023



- Original timeline created at the start of the project
- Project planning throughout the entire year with integration of hardware & software
- Meeting personal deadlines

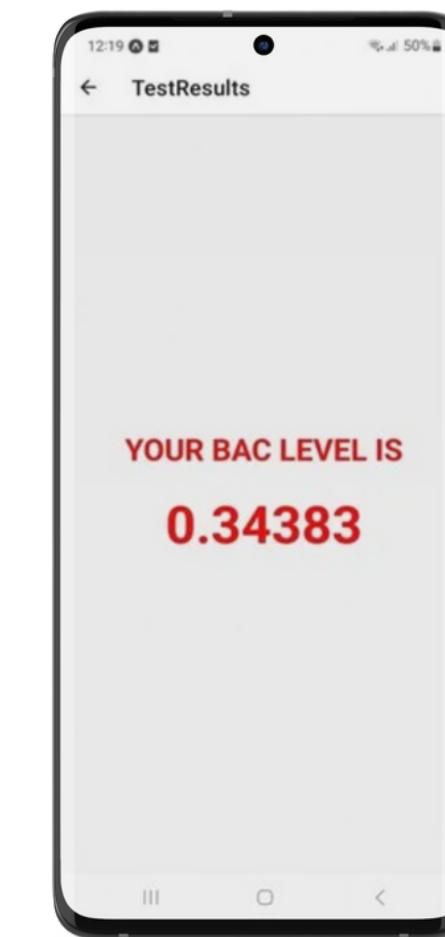
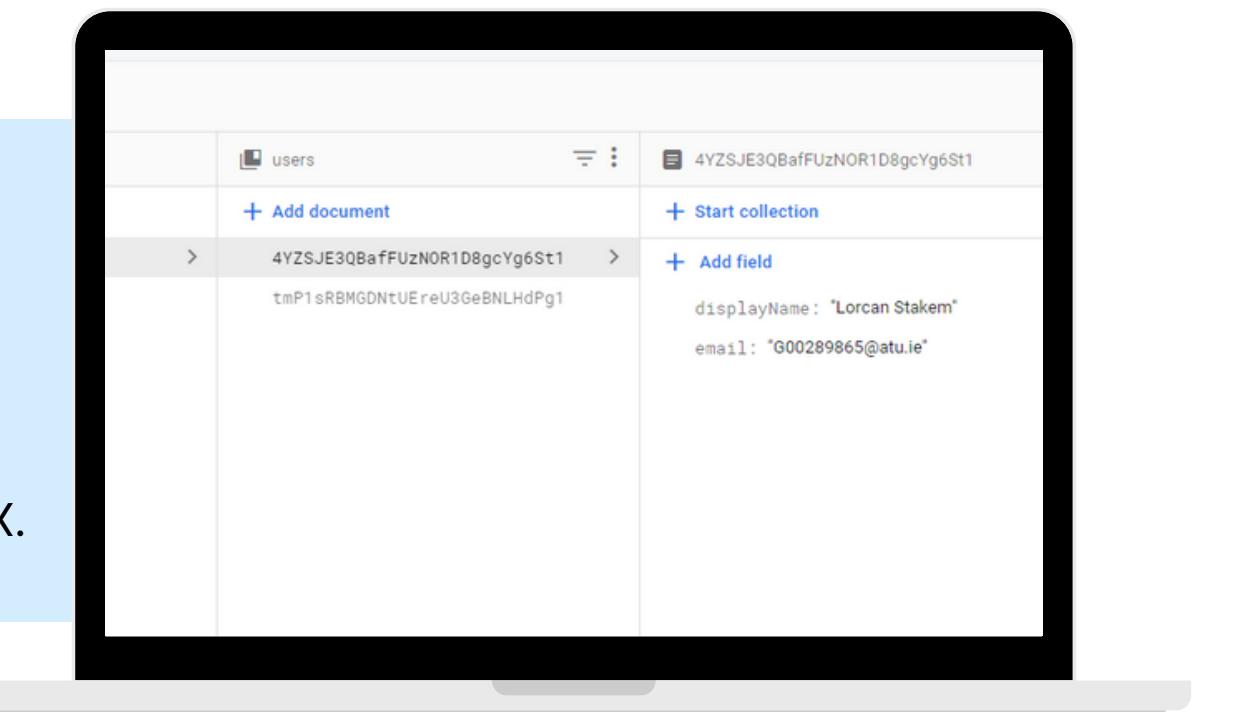
- Used JiraSoftware during the second semester to manage project workflow
- Customised workflows in JiraSoftware to match the specific needs of the project
- Managed my personal project tasks and efficiently prioritised & tracked my progress.

SOFTWARE



FIREBASE AUTHENTICATION

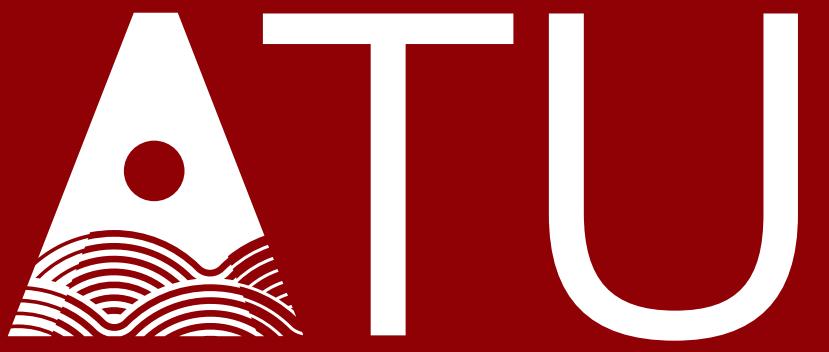
I USED FIREBASE AUTHENTICATION METHODS FOR USER REGISTRATION, AUTHENTICATION, SIGN-IN/OUT OPERATIONS, AND MANAGE THE APP'S AUTHENTICATION STATE THROUGH REDUX.



REAL TIME DATABASE

WITH FIREBASE'S REAL TIME DATABASE, I WAS ABLE TO STORE THE TEST RESULTS OF THE USER IN THE DATABASE, AND THEN SET UP THE DATA TO BE FETCHED FROM THE DATABASE AND DISPLAYED WITHIN THE MOBILE APPLICATION, USING AN API KEY AND DATABASE URL GENERATED.





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