ClubHQ

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Final Year Project

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ClubHQ is a full-stack web application to simplify the management of club members and their class attendance. The aim was to centralise a club's data and reduce paper records that can be lost or damaged.

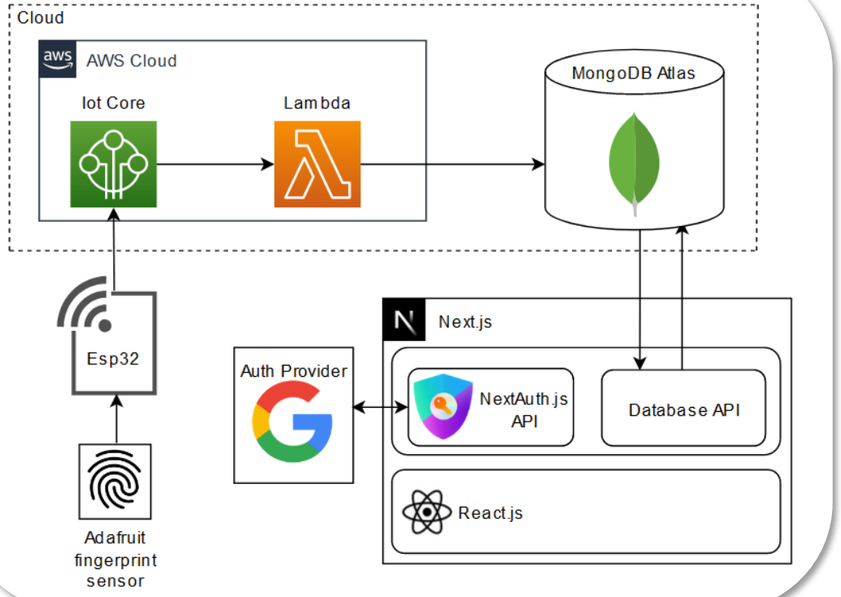
Technical Overview

Authentication
Members that have been set up by the admin can log in using the NextAuth.js Google provider.

Web App
The Next.js web app allows members to view their attendance, progression and profile. Admin can also manage members and their profiles.

MongoDB
The database has two collections. One for classes and student IDs that attended and one for members' personal information.

AWS
Using AWS security certificates, the ESP32 securely publishes messages to IOT Core which triggers a Lambda function to send the data to MongoDB Atlas using Node.js.



Hardware
The Adafruit fingerprint scanner stores and compares students' fingerprints. The ESP32 Wi-Fi module connects to AWS and sends the student id using the configured Wi-Fi network.

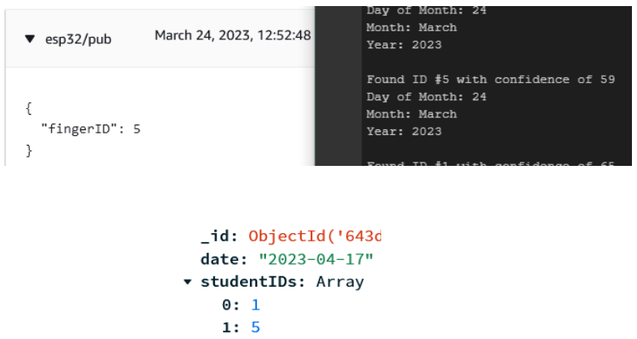
Admin can

- Enrol member fingerprints
- Add/delete members
- Manage members' attendance, profile and progress

Members can

- Log attendance with fingerprint
- Edit profile
- View attendance, profile and progress

Results
To send the data from the ESP32 to Mongo Atlas, an AWS Lambda function was needed. AWS IOT Core subscribes to messages from the ESP32 and using Node.js, transfers these messages to the database in the correct JSON format.



Deployment
The web app has been deployed on Vercel instead of AWS as it does not require an EC2 instance to be set up and running. When code is committed to the main branch on Github a Vercel build is triggered. If successfully built the app is deployed to the designated URL.

See for yourself
https://clubh.vercel.app.com