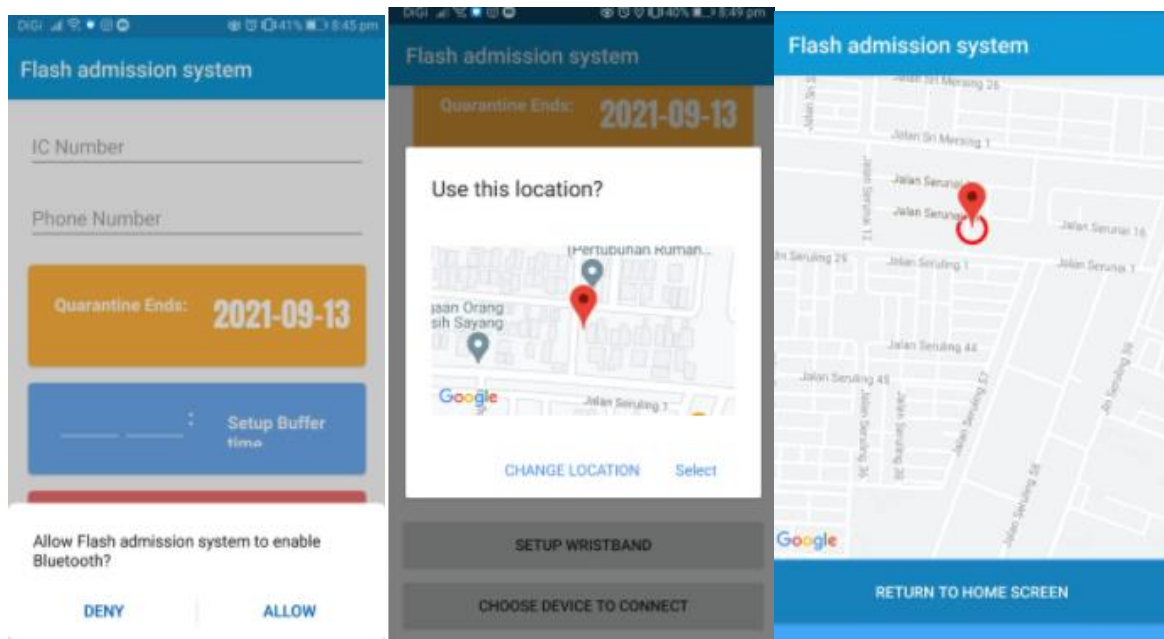


Flash: COVID-19 Contact Tracing System

Flash is the brainchild of five passionate students wanting to help solve an issue revolving the covid-19 pandemic. The project started around June 2020. At that particular period, visiting foreigners and outbound Malaysians returning to Malaysia were required to undergo a mandatory 14-day quarantine. However, due to the lack of manpower in enforcing the quarantine rules, there were many who were caught violating quarantine orders. Hence, we built an app to help enforce these laws; by changing the standard plastic wristband to a digital version who could be linked to the app for contact tracing purposes.

App Components

- The app is an android app that is used to set up the wristband.
- The app uses geofencing to determine the quarantine location and sends the location information to the wristband via Bluetooth.



Information to be entered:

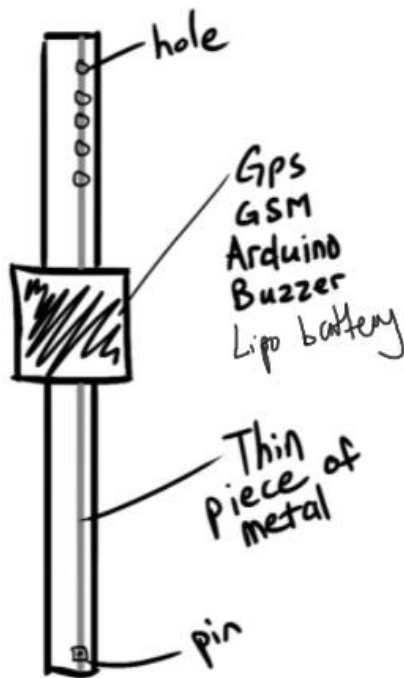
1. Phone Number and IC number
2. Buffer Time
3. Quarantine Location

** The buffer time is the time needed for the user to reach home so that the geofencing could start.

** The Quarantine end date is automatically set as 14 days from the current date

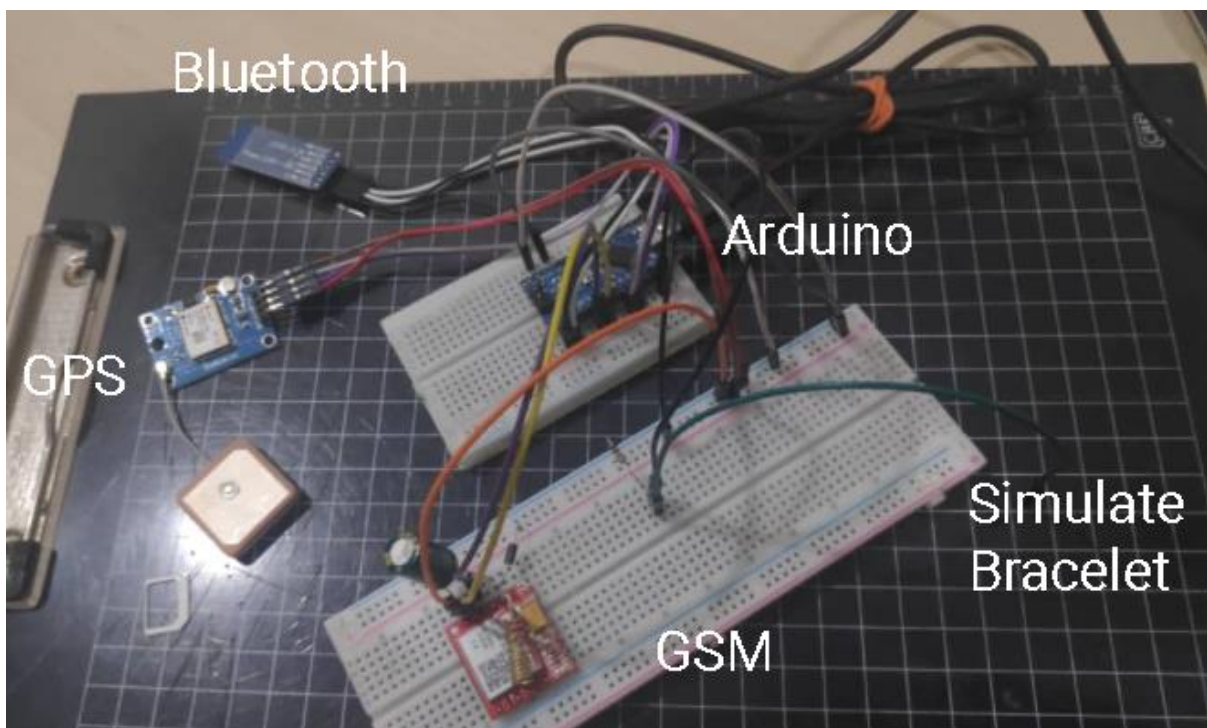
Wristband Component

- The wristband is a prototype made from an Arduino, GSM, Bluetooth and GPS component
- The app uses Bluetooth to send the information to the wristband.
- The GSM will send a notification to the server if user takes off the wristband or leaves the quarantine area.



MECHANISM OF WRISTBAND

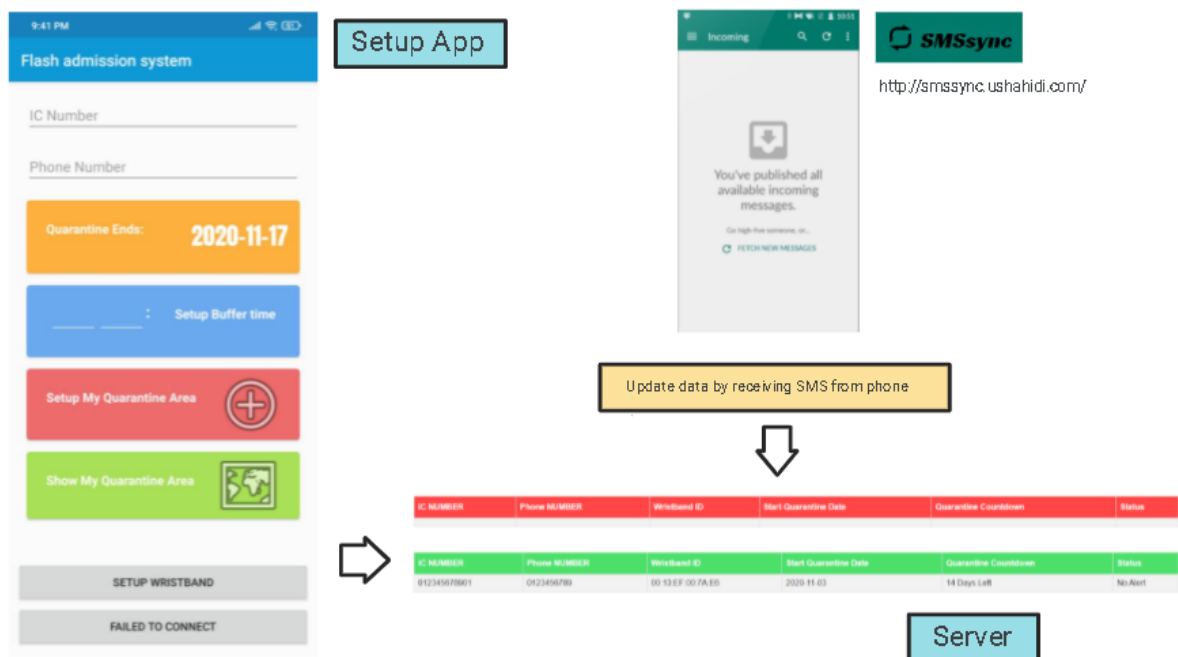
- Wristband activated once pin clipped to the hole
- Buzzer remind the user that they are out of the quarantine area
- Signal will be sent if the wristband is cut or stretched



Our earliest wristband prototype.

Procedure and Flow

When someone touches down in our country, a wristband will be given to them and the police or airport officials will use the app to set up the wristband (record personal details, set quarantine location, set buffer time). Then, the wristband is used to monitor the temperature and location of the user throughout the 14 quarantine days. If the user leaves the quarantine area or attempts to take off the wristband, the wristband's GSM will send a notification to the server notifying the officials. The sensitive data is encrypted and stored in a MySQL database.



I was one of the two developers on the team. We worked together to develop the android app and the website for displaying user information.

Our team successfully pitched this project at the iSpark Incubation Center's Pitching and Ideation session where a local venture capitalist was interested in the project and offered to mentor us. During which we have learned a lot about not only the technical side of building this project but also the business side of it. After two months of hard work in building the system, we were ready to pitch this idea to the local authorities. However, the project was cancelled as the end as we found out that our project violates one of the Human Rights Laws of our Country; i. e. tracking someone's location. Even though the project did not successfully launch, we learned a lot about setting up a start-up and the importance of teamwork.