LOGBOOK

Start of March – End of May 2021: During this time, we studied Android app development and Firebase Firestore and Google Vision API.

11th June 2021- We realised that we needed to make four user interfaces. This is a sketch of all 4:

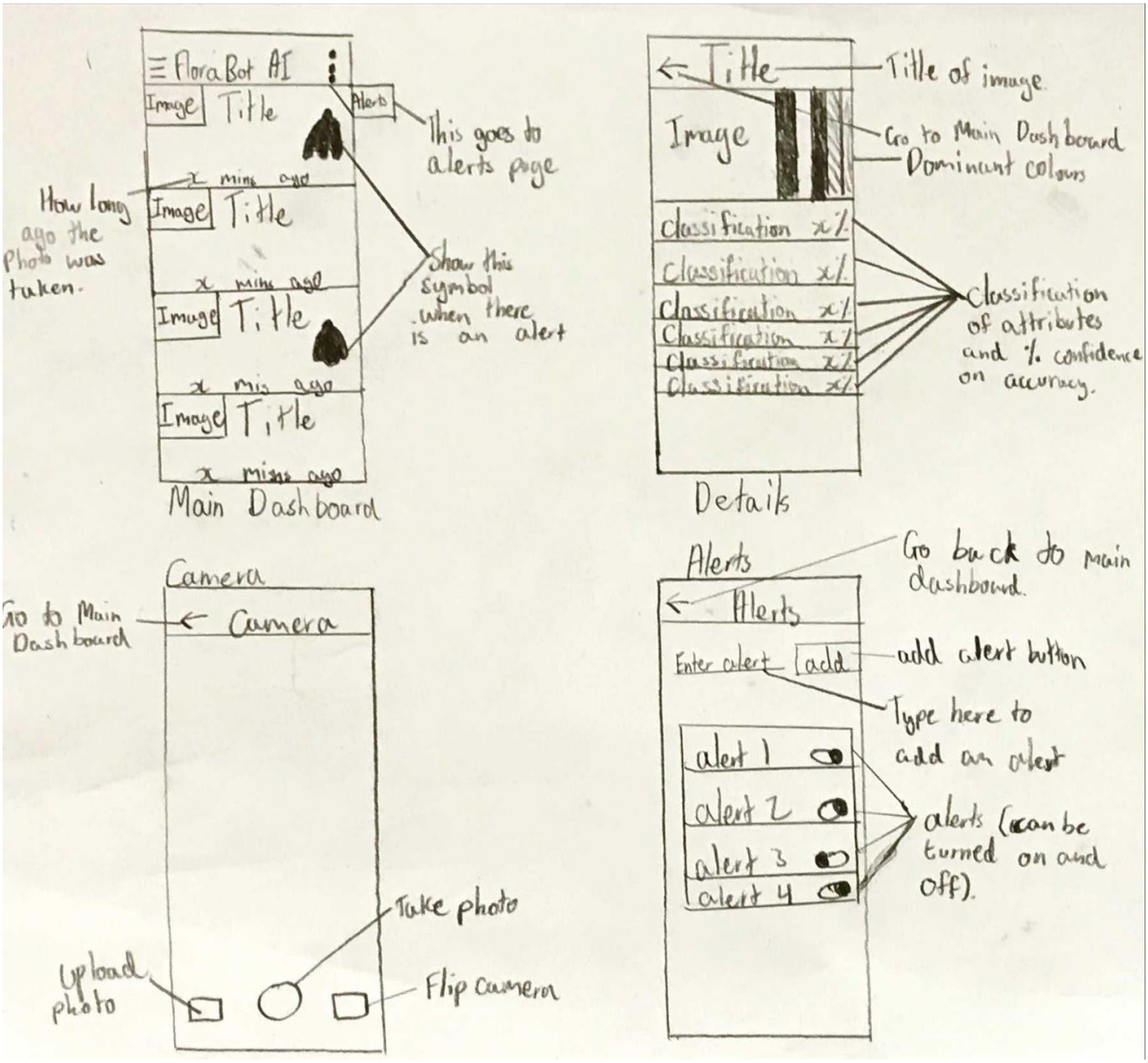

Figure 1. The sketch of the app.

12th June 2021 - 14th June 2021: We started to make the first user interface: the main dashboard. This is the final product.

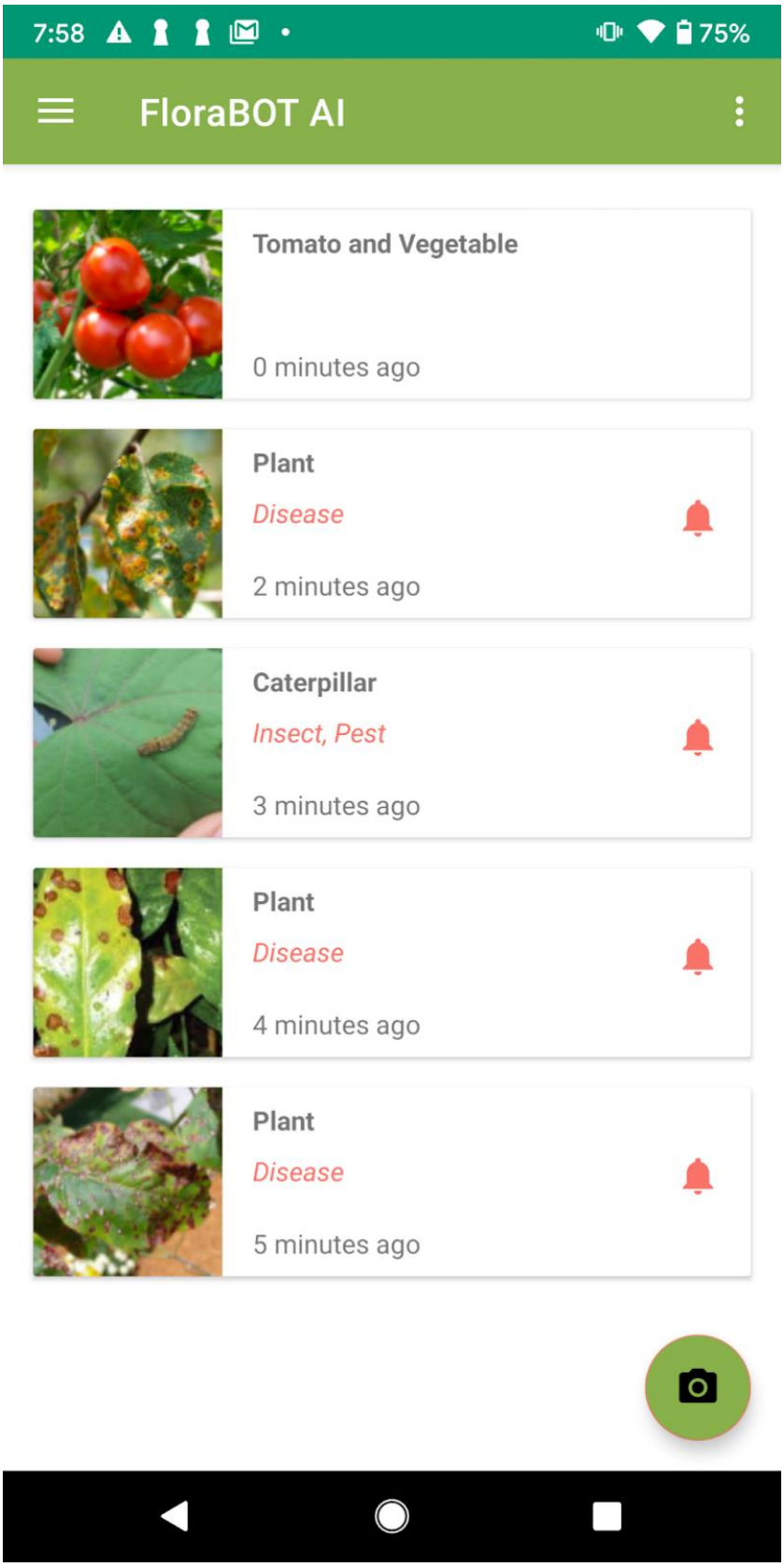

Figure 2. The Main Dashboard

15th June 2021 - 17th June 2021: We started to make the second user interface: the camera. This is the final product.

Figure 3. The Camera Page

18th June 2021 - 20th June 2021: We started to make the third user interface: the details page. This is the final product.

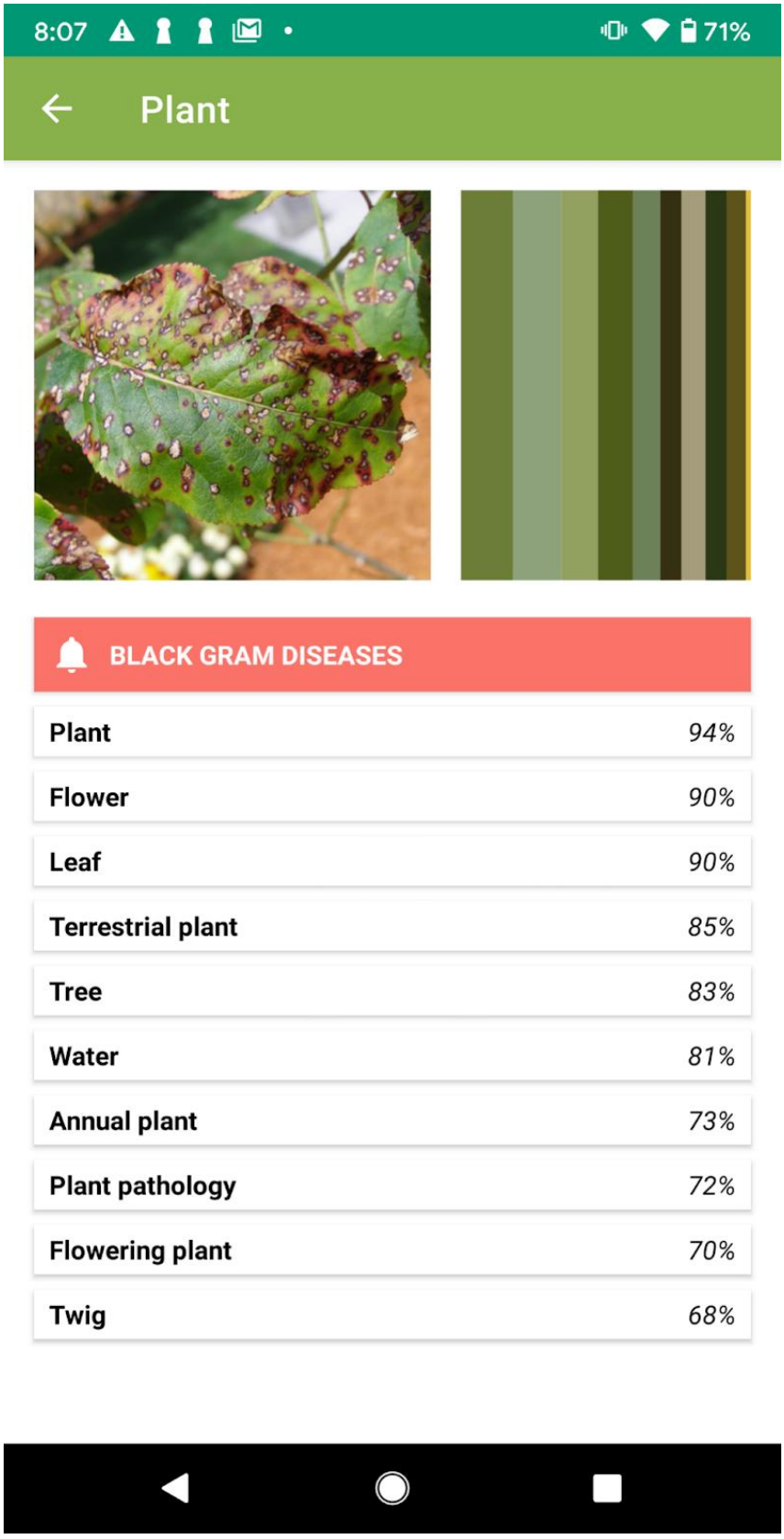

Figure 4. The Details Page

21st June 2021 - 23rd June 2021: We started to make the fourth user interface: the alerts page. This is the final product.

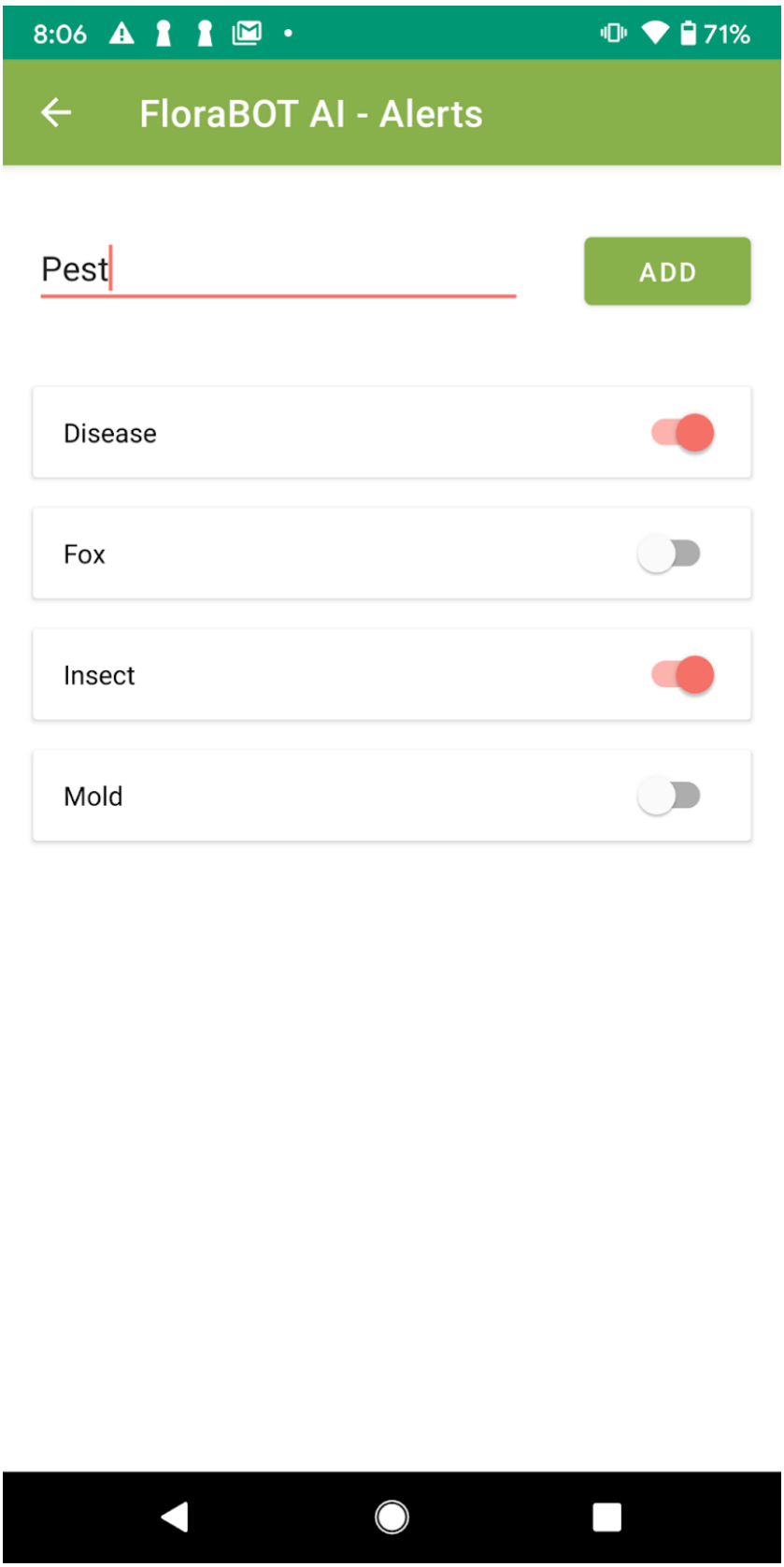

Figure 5. The Alerts Page

23rd June 2021 – 2nd July 2021: We tested the app to see if it has any bugs. From the test results, we decided that the app works. However, it can take a bit of time to load the new images. We also used Firebase Authentication to add a sign-in page.

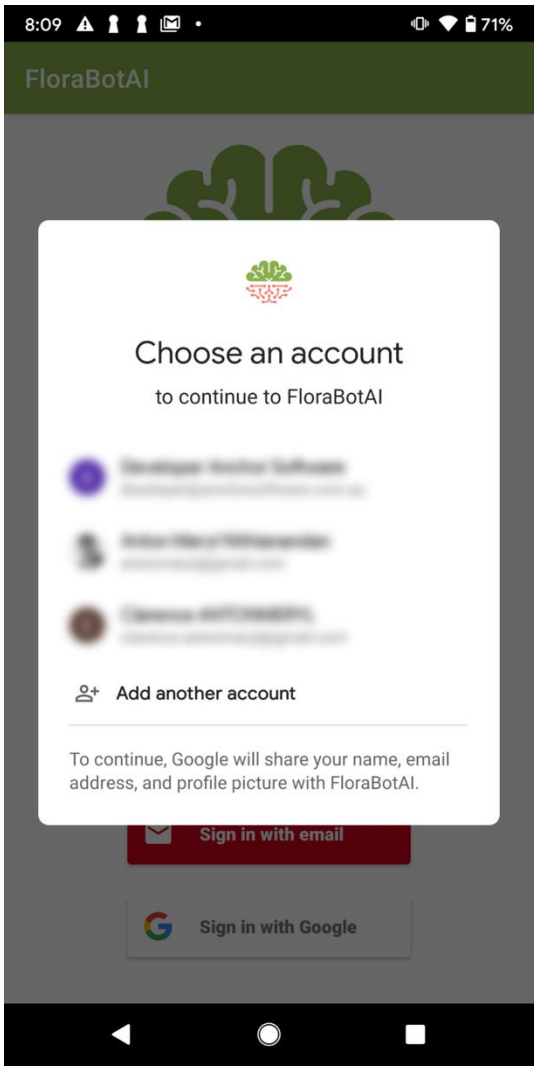

Figure 6 and 7. The Sign-in Pages

2nd July 2021 – 5th July 2021: We started to design the robot that will demonstrate the autonomous use of this app. We started by creating a stationary robot that would rotate. This is a sketch of the design.

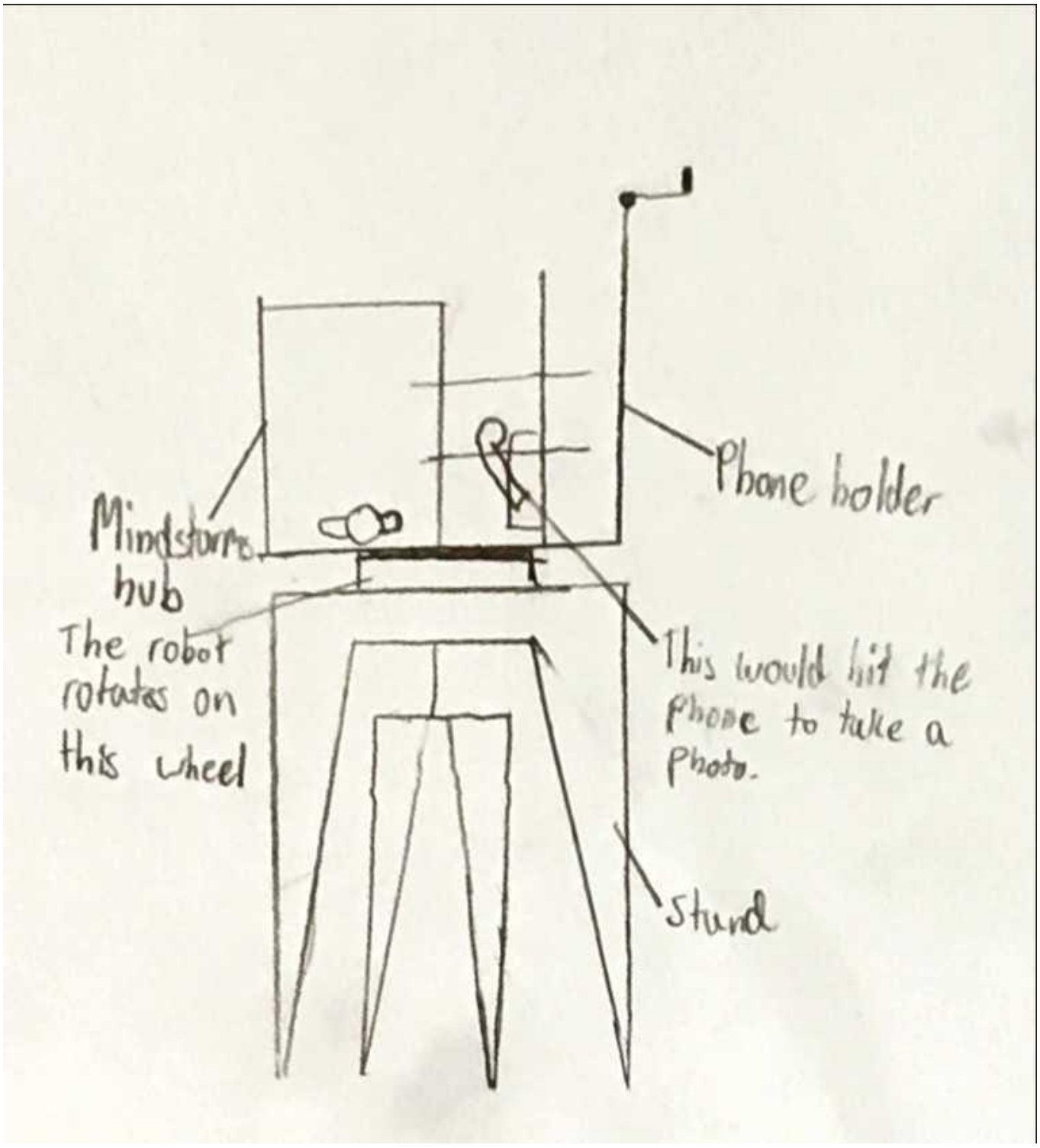

Figure 8. First Sketch of the robot.

5th July 2021 – 11th July 2021: We built the robot as per the sketch. However, we thought that it would be better to have a robot that can navigate an area rather than stay in one place. Therefore, we decided to make a robot that runs on wheels. This is the sketch:

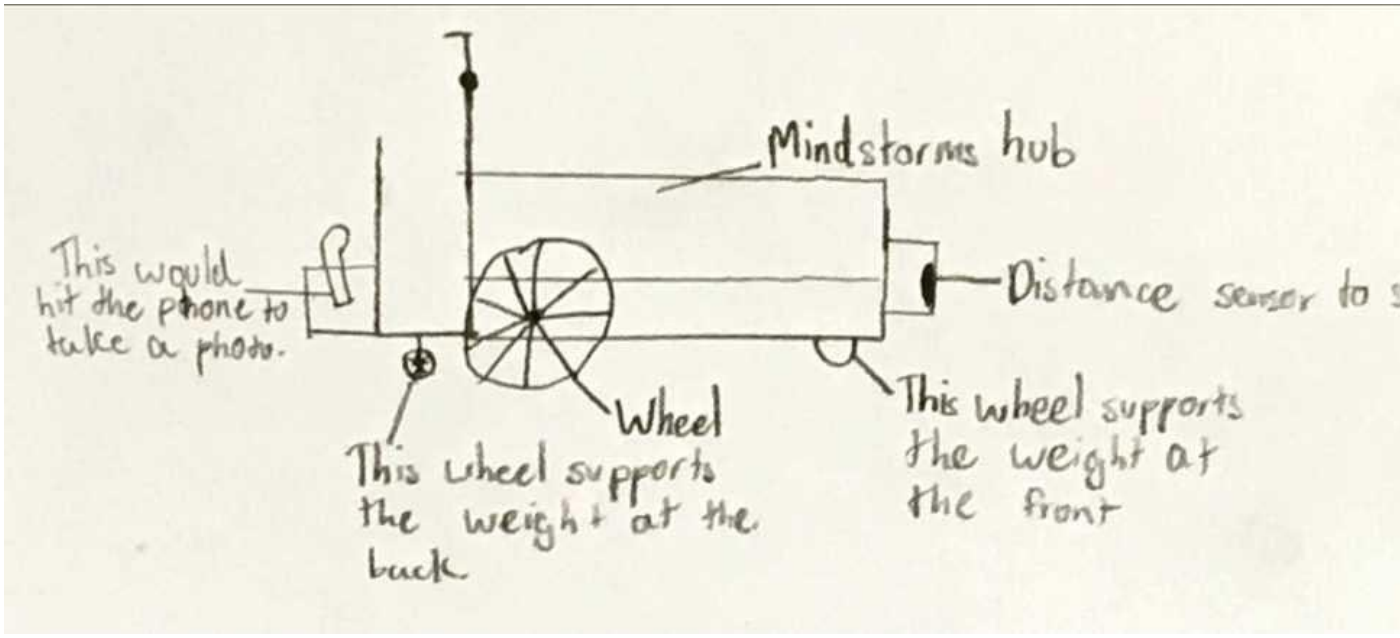

Figure 9. Second sketch of the robot.

12th July 2021 – 18th July 2021: We built the robot as per the sketch.

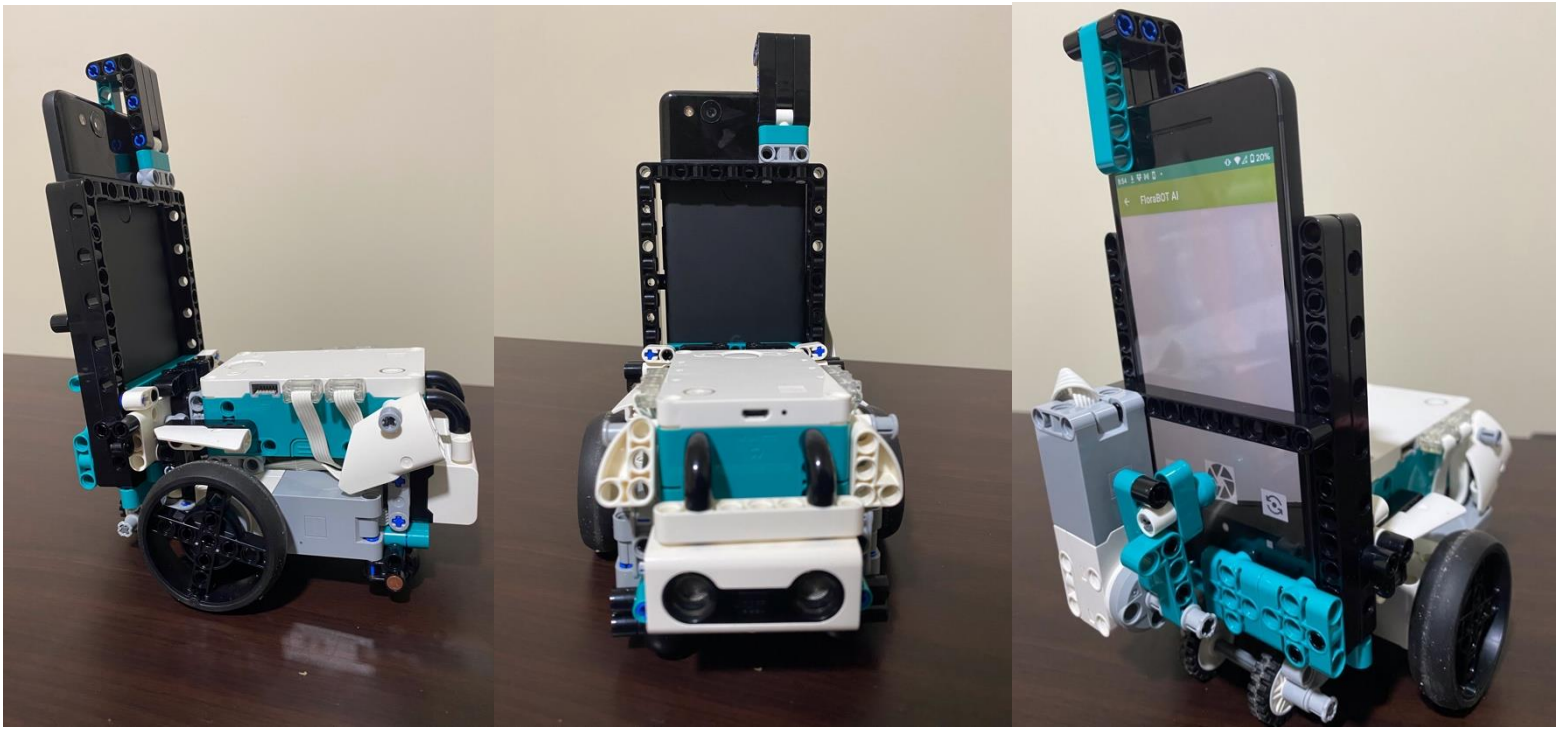

Figure 10, 11, 12. Pictures of the robot.

18th July 2021 — 21st July 2021: We programmed the robot to navigate by using a distance sensor to sense obstacles.

21st July 2021 – 25th July 2021: We tested the robot with the self-navigating code. It worked well and could avoid obstacles. However, there is room for improvement in terms of improving the self-driving algorithm.

26th July 2021: We have added a stylus to the back of the robot, so that the robot can take a photo, rather than just hitting the screen of the phone. It is placed on the photo-taking mechanism for the robot.