Meeting 1: Major Assignment Discussion
Meeting Minutes
Date: 26/04/2022
Time: 2pm
Location: Zoom and in-person

Attendance

- Zhanbo Zhu
- Nathan Lui
- Marc Seif
- Haohao Feng (online)
- Olivia Chen (online)
- Yixun (Teddy) Yan (online)

Meeting Agenda

- Reading through the assignment
- Setting up Github
- Setting up google drive
- Figuring out an idea for the project
- Finding out the functions of the PTU device

Points Discussed from last meeting

As this was the first meeting, there were no points to discuss from previous meetings.

Discussion Points

Google Drive link:
https://drive.google.com/drive/folders/1hHkU-s3_zu-Duf5ZC1bWr2eRCDulzhMd

Github link:
https://github.com/mseif7/MTRX2700-Major-Project

Functions of the PTU:

- LiDAR camera: detecting depth (how far away an object is)
- Rotating the camera up and down and around (3axis of rotation)
- Gyroscope (measuring the tilt of the camera)
- Accelerometer (measures the acceleration of the device in 3 directions and outputs the acceleration of the device)
- Magnetic field detection

Idea Brainstorm:

- Using the LiDAR sensor to scan an object for an empty shelf and then playing a sound to dragonboard to tell a worker to refill the shelf
- Using the LiDAR sensor to stop a conveyor belt from moving when an object is detected

- Using the Magnetic sensors of the PTU to detect if there is metal when a person is walking in/out of the supermarket to see if they are stealing things

- Mapping of the environment & locating a specific shelf / item using LiDAR sensor and magnetometer (for height the height of an item based on gravitational acceleration)
  Also adding to point 1 - this system can provide staff with item location for refilling the shelf? (Teddy)

- Using the LiDAR sensor to scan the action of the customer leaving the cashier, then display "thank you" with LEDs and play music with speaker.(zhanbo zhu)

- Using metal detection to detect the metal contaminants in fresh produce. By rotating the camera at specific speed while the conveyor chain is working, the camera can scan the products at different angles. Including LEDs to show the current operation mode. Including sounds will the contaminants detected to notify the workers. https://blog.matthews.com.au/pros-and-cons-of-metal-detectors-for-fresh-produce-inspection/

- Shopping trolley that follows a customer around or a customer pushes around. Using LiDAR camera to detect objects around people so that it doesnt bump into anything (for people with disabilities)
- Using the lidar and magnetic sensors to return shopping trolleys to the bay.

Next Meeting Time and Allocated Tasks

- 30th April 9pm (sydney time) [7pm china]
- At least 1 idea from each person, implementing at least two of the functions listed above
  - As well as functions on the dragonboard (7 segs, sound, LEDs, etc.)
  - Look at the notification for more guidance on how to come up with ideas