Meeting 3: Module Design
Meeting Minutes
Date: 10/05/2022
Time: 2:00 pm
Location: Zoom and in person

Attendance

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

Meeting Agenda

- Update members on the work we have done
- Experiment with LiDAR camera values
- Check-up on progress

Points Discussed from last meeting

We caught up with one another and checked if we were all doing ok with the progress of the project, ensuring that each of our tasks were done and assigning new tasks to be done by the next meeting

Discussion Points

- LiDAR camera testing:
    - Excel document of the data we received.
    - We tried to calibrate the camera by setting a particular distance from the camera and a book and measured the distance between them, while getting the value from the camera and putting it in an excel document

Allocated Tasks

- Marc: Finish up the LED - getting a percentage of the shelf full-ness and lighting the corresponding (out of 8) LEDs to switch on
- Nathan: Pan and Tilt to go and stop at a certain distance and then move on to the next, based off of the cols and rows that are taken in from another function by the user
- HaoHao: figure out a way to deal with the noise when it comes to the LiDAR camera
- Zhanbo: Using an unknown distance to spot within a range and make an array of some sort or a way to count the number of boxes or “stock” will available
    - Can work on the 7-seg
- Teddy and Olivia: get the serial input reading function working - and then Teddy can keep trying to work on LCD (without simulation), if Olivia and Zhanbo wanna work on arranging input into an array

- Can work on the 7-seg from simulator

Module design and breakdown:

1. User input - serial command: total rows and cols, total height and width of the shelf, height and width length of the box on the shelf. (either terminal command or using something like a number pad from the dragonboard (which we will have to figure out))
    a. Intialise storage: (split the data up into rows and cols and create an array for the program to go through and fill up with information)
2. LiDAR camera: scanning the distance from the camera to the object (returning a distance)
3. Pan and tilt: computing the correct angles for panning and tilting the camera (allow the camera to pan and tilt)
    a. Submodule: break down the boxes to find the centre of the boxes and decide the angle to tilt and pan
4. Box detection: taking in the distance taken in from the camera and using it to decide if there is a box in that spot (returning a boolean value to tell if there is a box there are not) → then append this value to the final array (main file)
5. 7 seg display: displays the number of boxes remaining
6. Sound: play a ‘beep beep’ periodically (to tell the user that the shelf is empty)
7. 8 LED lights: display the percentage of existing boxes through illuminated LEDs (scale of lights from 0-8 leds representing 0-100% full)
8. LCD display: show a message - “the shelf if full”, “the shelf has x items”, “the shelf requires a refill”

Module 1: Olivia and Zhanbo
Module 2: Nathan and Haohao
Module 3: Nathan and Haohao and Olivia
Module 4: Haohao
Module 5: Zhanbo
Module 6: Nathan
Module 7: Marc
Module 8: Teddy

Next Meeting Time

- 9pm 12/05/2022