Anthony Feliciano
CSE 321
Project 3

Part A: Project statement

My project's purpose is to design a sensor that can alert the user that someone is breaking social distancing (i.e. standing closer than 6 feet from the user) and alert the user using a buzzer and LED lights. This device could both be carried by a singular person or be used for areas where people are most likely to gather like a library or on the line at Tim Hortons for example. This project could be useful as many people forget the importance of social distancing.

Part B: Initial Constraints and Specifications

- Will need a button to turn sensor on and off
- Sensor will have to sense at least 6 feet away
- User must be able to turn the device on and off
- Buzzer must have a cooldown in between alerts
- Transducer must be placed in an area in which there aren't inanimate object within 6 feet

Part C: Asks

Purpose:

The purpose is to prevent people from not being distant enough from each other. A user would carry the device or place it in an area which should not have people getting to close to eachother.

Inputs:

- Ultrasonic Transducer
- 4 x 4 keypad in order to turn on and off detector

Outputs:

- Buzzer to alert user
- Three LED lights to gauge distance of nearest detective object(one green, one yellow and one red)

Constraints:

- Device must not ring the buzzer when it detects object farther than 6 feet
- Device should be small enough to carry or put on a small platform
- Device must have a way to be turned off by user if needed

Part D: Preliminary BOM

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- Nucleo-L4R5ZI
- USB A to Micro USB B cable
- 3 LED lights(one red, one blue and one green)
- 3 resistors
- At least 10 male to male jumper wires
- Ultrasonic transduce
- Buzzer