**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**

* 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**