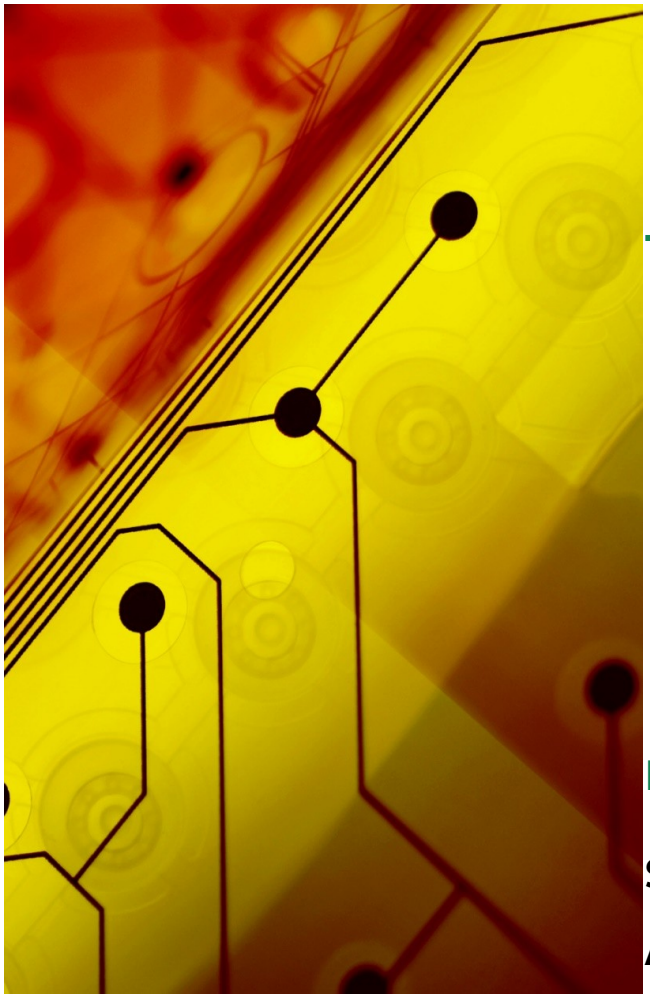

HACKATHON

TEAM NEWBIES

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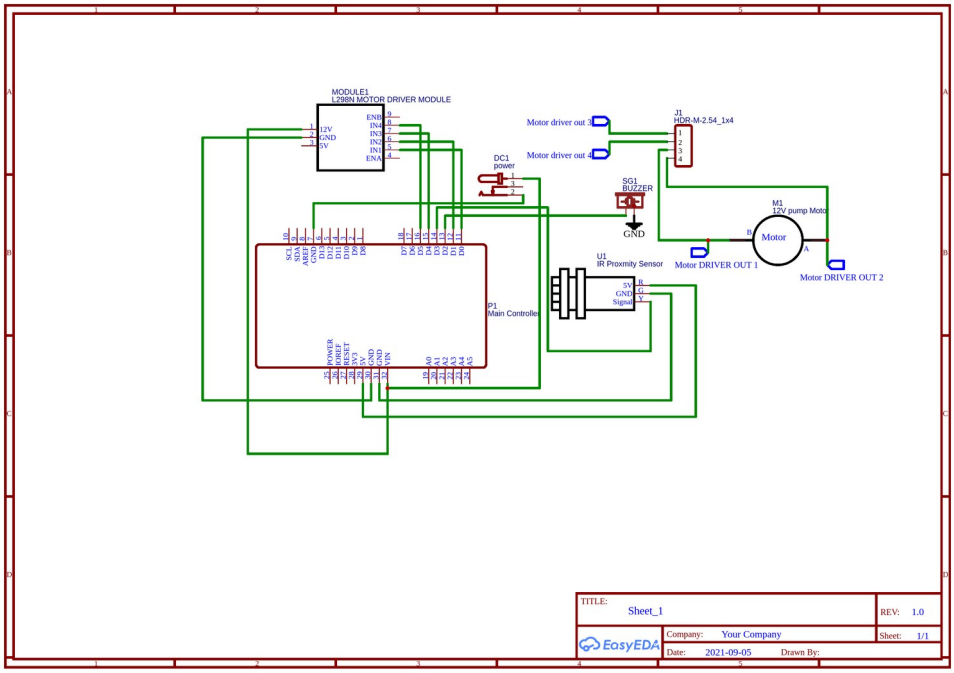
Problem statement

- For Chennai airport, design and develop an automated sanitizer dispenser, detect human presence through sensor and dispense sanitizer of 5 ml at the entrance.

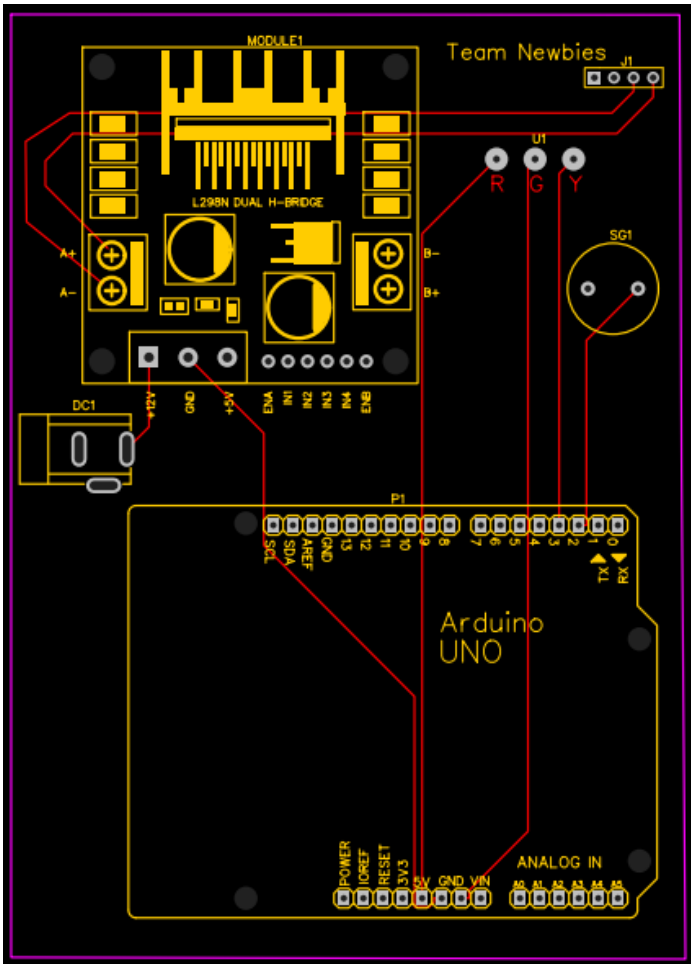
Scope

- The people at an airport are people from many parts of the World . Since there is a pandemic situation going on to avoid the spread of covid everything the passengers comes in contact should be properly sanitized as well they should sanitize themself regularly. Therefore, we should also provide an automatic sanitizer dispenser so that they can keep themself sanitized. Therefore, a large container of hand sanitizer with IR sensor that automatically dispense with it senses a person hand can be a solution to this problem.
- Demand for hand sanitizers has surged since the coronavirus broke out and spread around the world. Hand sanitizers are usually applied by squirting the sanitizer liquid when one presses a pump with one's hand. This causes many people to come into contact with the pump handle, which increases the risk of viral transmission.

Design of circuits and boards



Schematic diagram of prototype



PCB diagram of prototype

Technologies used

- 12v Pump motor,

  Has two pins , one for positive and one for negavite
- 12v Led strip

  Has two pins , one for positive and one for negavite
- 12 v power supply

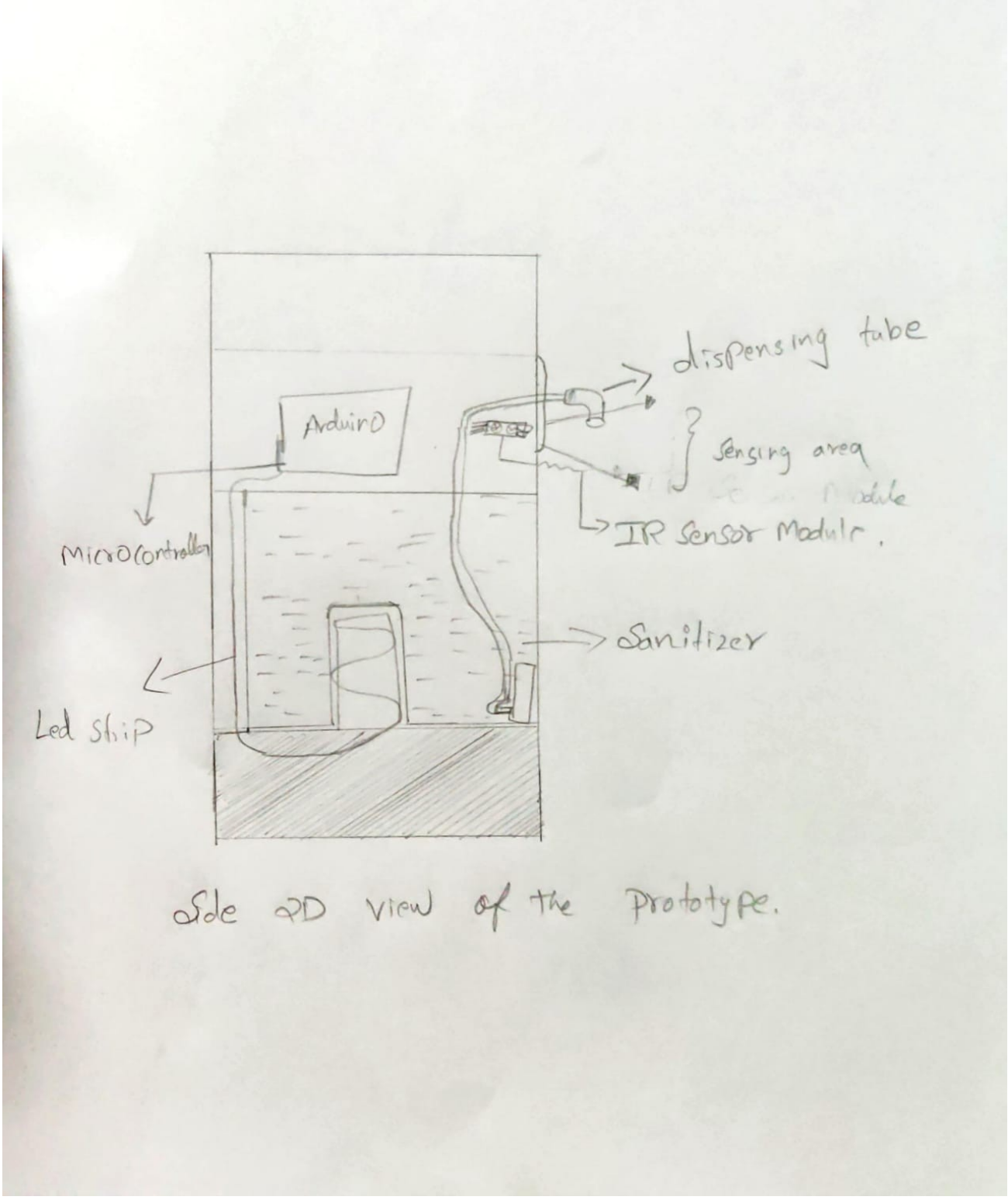
  Made with four 3.7 volt lithium ion battries
- Arduino UNO
- L298 2A motor driver module

  Has 4 out pin and 6 input pin
- IR proximity sensor module

  Has 4 pin Gnd,5v,signal,enable
- 5 v buzzer

  Has two pins , one for positive and one for negavite
- Old water purifier body
- Connecting jumper wires

Process and diagram



- When the the prototype is turned ON , first the arduino uno will read the input signal from the pin 3 . were IR sensor' Out pin is connected .
- Next , As per the program conditional loop will occure . If the the IR sensor module sence the human presence . It will call the MotorON function and Checkexit function . Were the two functions are user defiend function
- Motor function is called to turn the acutuators (MOTOR , LED and the buzzer) ON , after 500 ms the motor will be turned OFF , hence the dispensing effect is created and the motor should get the sanitizer to the valve
- But the led and the buzzer is reamin ON till the checkexit function ends . Here check exit function is used to prevent sanitizing the same hand again
- Then the led and buzzer will be OFF , and the prototype will be ready in loop for the next trigger
- Also we include one more function called hummaneffect to blynk the led and buzzer ., to indicate that the human need to take the hand back .

Microcontroller code

```
/ Serial commands are used to debug the program , in the real time run they are are not needed .
     so the serial commands are commented in the code
//                    TEAM NEWBIES
const int IRSensor =     ; // connect ir sensor to arduino pin

const int motor      =        ; // for motor
const int motor      =        ;//      ""
const int buzzer  =             ;// For buzzer
const int ledP  =        ;// for led
const int ledN  =        ;
void setup()
{
     pinMode (IRSensor, INPUT); // sensor pin INPUT
     pinMode (motor , OUTPUT); // motor pins OUTPUT
     pinMode (motor , OUTPUT);
     pinMode (buzzer, OUTPUT);
     pinMode (ledP, OUTPUT);

  pinMode (ledN, OUTPUT);
```

```
      //Serial.begin(               );
}
void    loop()
{
      int    statusSensor    =    digitalRead    (IRSensor);
   //    Serial.println(statusSensor);
      if    (statusSensor    ==       )    //          mean    idil          mean    getting
signal
      {
            digitalWrite(motor    ,    LOW);    //    motor    relay    LOW
            digitalWrite(motor    ,    LOW);

            //Serial.print(".");
      }
      else
      {
            //Serial.println("Dedected");
            motorON();
            checkexit();

            digitalWrite(buzzer,    LOW);
            digitalWrite(ledP,    LOW);
```

```
            digitalWrite(ledN,    LOW);
            delay(          );
      }
}


void    motorON()
{
      digitalWrite(motor    ,    HIGH);
      digitalWrite(motor    ,    LOW);    //    motor    on
      digitalWrite(buzzer,    HIGH);
      digitalWrite(ledP,HIGH);
      digitalWrite(ledN,LOW);
      delay(          );
      digitalWrite(motor    ,    LOW);
      digitalWrite(motor    ,    LOW);    //    motor    off
}
void    checkexit()    //    To    confirm    that    the    hand    is    taken    and
getting    ready    for    nxt    triger
{
      //Serial.println("checking");
      int    status    =    digitalRead    (IRSensor);
```

```
      while  (  status  ==        )
      {
            //humaneffect();
            //Serial.println("plz  take  the  hand");
            status  =  digitalRead  (IRSensor);
      }
}
void  humaneffect()
{
            digitalWrite(ledP,  LOW);
            digitalWrite(ledN,  LOW)  ;
            //digitalWrite(buzzer,LOW);
            delay  (            );
            digitalWrite(ledP,  HIGH);
            digitalWrite(ledN,  LOW);
            //digitalWrite(buzzer,HIGH);
               }
```

Video of end product

https://drive.google.com/drive/folders/1H6aSbuTgamDiNju7rsVGM-OS5bchO0Kr?usp=sharing

pictures and videos of the prototype is in the link abve

GitHub link

entire project schematic,code and pcb files are in the github page plz reffer to it

https://github.com/susu-newbies/Mart1_sani.git

Challenges faced and how we overcame it

- There were a few problems that we faced along the way mainly since we were all separated else to the covid situation so we could only discuss the project through google meet
- one of the problems we faced was the lack of proper pieces of equipment due to the pandemic situation they were either a little tough to get a hold of or we had to use some other
- equipment's instead of it to make the product, since we couldn't get a relay module, we decided to go with a motor device instead. Another one occurred while coding the program, after
- the point where the hand sanitizer has already been dispensed for the first time, what if the person still keeps his hand and doesn't take it off for a few second. We solved it by
- putting a while function where if the IR sensor still detect someone the LED keeps blinking and doesn't dispense the sanitizer until the hand is taken back, cause it doesn't go back to loop function until the sense nothing.