Project Plan Document

Project Name: Sefty System in Public Transport During Covid-19

Subject: IOT

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Section-1: Project Description:

1.1: The Problem Solved specifically in this project:

We know that now this time is a pandemic time for all of us. We are attacking by a virus which is covid-19. So we all need to safe from this situation. But that's why we can't stop our daily work. That why we need to safe transportation. If we have a private transportation system then it ok for us but in our society or in our country have people like there haven't so much money for buying a personal vehicles for transportation. So that's why they want a safe public transportation system. And that's why I make an IOT project for safety system in public transport during covid-19. This project is so helpful for giving us a best safety system in public transport during this covid-19 situation.

- ## 1.2: Project specialty and expected outcome:

  The main objective of this project is to develop a safety system for public transport during Covid-19 situation. Such as detect the face musk and also detect the body temperature of passenger and also monitoring the social distancing of the vehicles passenger. And finally it helpful to solve the problem of limit crowd in public transport and also this project is helpful for passenger for Setting up a contact free hand sanitizer dispenser along with a reminder and alert system near the vehicle door. In this project also provide contract less temperature cheek for each person boarding in the public vehicle. All this features make these methods sustainable option to be considered to improve this pandemic situation and take all the passenger save in the public vehicle.

After the implementation of this project it is expected to achieve several goals:

- limit the crowd in public transport
- Setting up a contact free hand sanitizer dispenser along with a reminder and alert system near the vehicle door.
- Contact less temperature check for each person boarding the public vehicle.
- Checking whether social distancing is applied properly or not in the vehicle.

Section-02: Material Description:

Material	Features
Arduino	➢ Microcontroller AT mega328 ➢ Voltage of operating 5V ➢ Recommended input voltage 7-9V ➢ Range of input voltage 6-20V ➢ Pins of digital I/O 14 (of which 6 provide PWM output) ➢ Pins of Analog Input 6 ➢ Per I/O Pin DC Current 40 mA ➢ Pin Current DC for 3.3V 50 mA ➢ Memory of Flash 32 KB (ATmega328) (0.5 KB used by bootloader)
Face sensor	➢ Voltage of working 5v ➢ Current of working < 20 mA ➢ Analog interface ➢ Detection depth 37mm ➢ Working temperature range 0-14 ➢ Weight 3 gram ➢ Size (36×20×8) mm ➢ Arduino compatible interface ➢ Power consumption low ➢ High sensitivity ➢ Signal output of voltage 0-4.2 v

Alarm System	➢ The output signal of Comparator has a good clean waveform, ability of driving, over 15 mA ➢ Temperature Sensor is used to adjust the sensitivity. ➢ Voltage of working 5V ➢ Format of Output: Digital switching output (0 and 1) and analog output of voltage AO ➢ With bolt holes, so it is easy to install ➢ The PCB board size: 3.2cm x 1.4 cm ➢ Uses an extensive voltage LM393 comparator. ➢ Adopts high quality of RF-04 double sided material. ➢ Area: 5cm x 4cm plate on side made of nickel. ➢ Good oxidation resistance, conductivity resistance.
Temperature Sensor	➢ The output signal of Comparator has a good clean waveform, ability of driving, over 15 mA ➢ Light Sensor is used to adjust the sensitivity. ➢ Voltage of working 5V ➢ Format of Output: Digital switching output (0 and 1) and analog output of voltage AO ➢ With bolt holes, so it is easy to install ➢ The PCB board size: 3.2cm x 1.4 cm ➢ Uses an extensive voltage LM393 comparator. ➢

Water pump	➢ Voltage of Input: 6-12 VDC Rate of Flow: 1.5-2 L/min ➢ Temperature of Operation: 80◦C ➢ Current of Operating: 0.5-0.7A ➢ Distance of Suction: 2 meter (Max) ➢ Pump Life: 2500 Hour ➢ Size of Pump: 90x40x35 mm
Rechargeable Battery	➢ Type Lead acid Battery. ➢ Model PP 2.3-12 ➢ SV code 380301 AALV4 ➢ Brand Power Plus ➢ Color Black ➢ Battery Voltage 12V ➢ Battery Capacity 2.3 Ah/20 HR ➢ Size (L × B × H) 10cm × 7cm × 4.3cm

Section-3:Project Plan:

Milestones:

- First of all I have to plane and discuss the main idea of the project.
- Second I made list of components or materials needed for this project.
- After I have to make a blue print of my project to complete this and also I have to prepare all the things to start working my project.
- Latter I will start working on hardware part and make all wires connection for each device.
- Later on I will started programming part where I programmed and test all the sensors individuals.
- Then I will combined all programming code together for the large scale project or final project.

- Then also I will make test for the entire project to make sure everything working as I want using different condition for each sensors.
- Then I will start my work on software part and also I start writing a report for this project.
- Then I will also start work hard for complete my TOI project properly.

Section-4: System Requirements:

a) Requirement process:

I make analysis of the system requirement based on different factors which are:

- Easy to use
- Strength
- Quality
- Modifiability
- Automated and complete
- limit the crowd in public transport
- Setting up a contact free hand sanitizer dispenser along with a reminder and alert system near the vehicle door.
- Contact less temperature check for each person boarding the public vehicle.
- Checking whether social distancing is applied properly or not in the vehicle.

➢ **Easy to Implement/use:**

The materials required for this project must be easy to install to implement a successful project. In addition, materials should be easy to connect with each other to build this project and become more effective. Also the materials of this project must be easy to replace it in case of any damage.

- **Strength:**
  The tools needed for this project must be strong to operate for a long period of time to achieve the desired success. In addition to achieve one of the important goals required to save money.

- **Decrease the cost of operation:**
  The tools required to build this project must be of excellent quality to operate for a long time. Just because of decrease the cost of operation. For decrease the cost of the project we can use some kind of sensors for multiple uses. And also we can use excellent quality component for making this project that's why it will decrease the cost of operation.

- **Automated system fully:**
  I tried my best to make my project fully automated system. So that we can decrease man power for operate this project. It's a fully automated project so that I can be very easy to use.

- **Limit the crowd in public transport:**
  Here I will use a sensor for social distancing. When any passenger will setting closed with other passenger then the sensor will send a comment to the busser for turn on. Then the busser will make sound optimistically. So that we can optimize passengers for make distance in this pandemic situation.

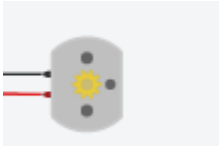
- **Setting up a contact free hand sanitizer dispenser along with a reminder and alert system near the vehicle door:**
  Here I will use a sensor with a motor for automatically supply the hand sanitizer for all the passenger. When the passenger enter the

public transport the automatic sanitizer system will be set in the door. The passenger take their hand near to the sanitizer the sensor will start and send the command to the sanitizer motor for turn on then then the motor will be turn on and passenger can sanitize there hand properly with no west of the product.

- **Contact less temperature check for each person boarding the public vehicle:**
  Here I will use a temperature sensor for checking the body temperature of all the passenger when they enter the public vehicle. And if any passenger have more than 100 degree of their body temperature then the gate of the vehicle will be automatically closed. Here I also use a motor with a sensor for open and closed the vehicle door. So for this process we can fulfill the requirement of contact less temperature check for each person boarding the public vehicle.

b) Component which I will use in this project:

For complete this project here I use some component. So here I also tried my best to include all the components which I used in my project.



Two DC motor (one is for supply the sanitizer and another is for door open and closed)

One PNP transistor for connect motor and resistance and power suply

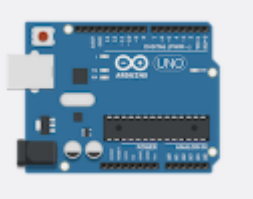
Resistor 1 kΩ, 180 Ω Total two resistor for multipurpose use.

One temperature sensor for measure the passenger body temperature.

One LED.

One Ultrasonic Distance Sensor for measuring the distance for one passenger to another passenger.

One small Breadboard for connecting some sensors and components



One Arduino Uno R3 board

One LCD 16*2 monitor for showing results

One busser for alarming the social distance sensor.

Some ware for connecting all the component properly.

And some more elements for complete all the requirements of this project.

Section-5: Working Process:

Here I think some points or process for complete this project. But I can't implement that because I dos not complete the project in my tinkercad account. I just complete my project pan and I should be just submit this document only in the module. So that's why here I can't implement this part in this document.

So that's all about my project here I also tried my best to include some of the points about my project work.