

# INCUBATEIND HACKATHON

## TEAM INTRODUCTION

Team Name : MOON WALKERS

Team Leader Name : NAMAN ARORA

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GUPTA, NAMIT JAIN

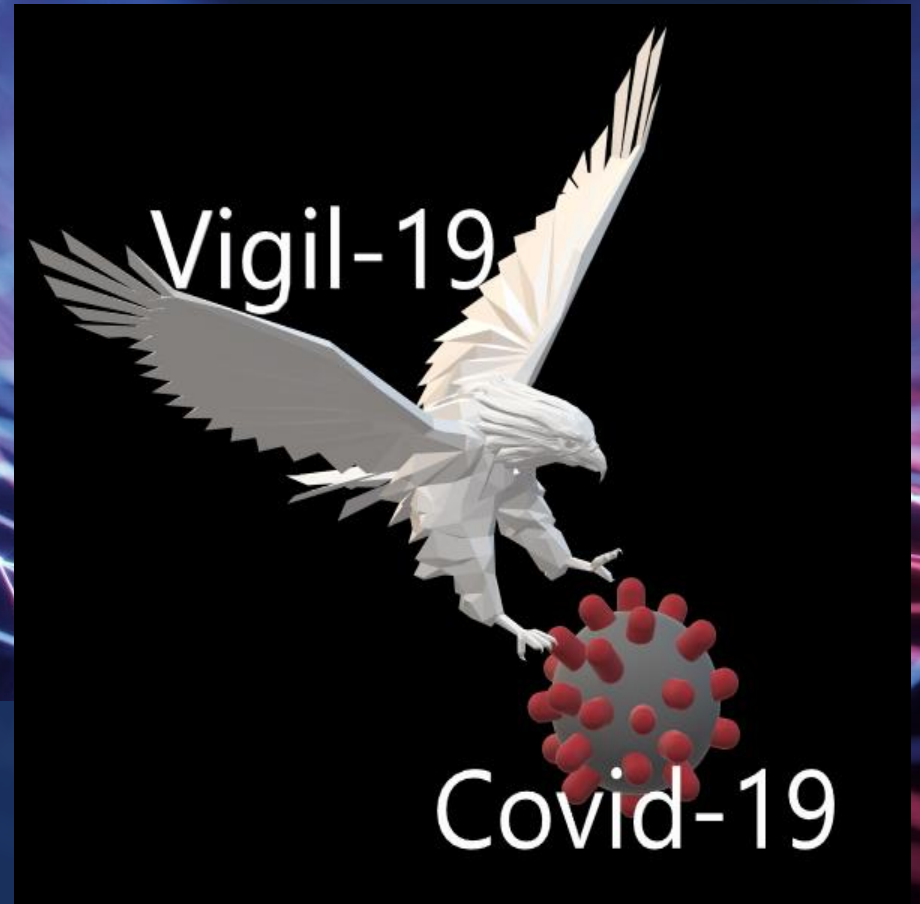
College Name : MAIT

## **PROBLEM STATEMENT:**

*To understand and prevent the spread of COVID-19 pandemic in the society by appropriately isolating the positive as well as quarantined patients*

# VIGIL – 19

## MOON WALKERS



# **THEME : PREVENTING THE SPREAD OF COVID-19 VIRUS IN THE SOCIETY**

## **IDEA :**

One of the major challenges that the entire world is facing today, is the contain the outbreak of the COVID-19 virus. Taking the societal structure of India, we present an effective way to identify and segregate the affected as well as the quarantined from the rest of the society so that community transfer can be stopped. We actually plan to track the entire timeline of an infected person like with whom he established contact and where.



# IMPLEMENTATION DETAILS

The major idea behind the CORONA FACTOR is that we need to limit the social and communal activities of infected as well as quarantined people. We tend to do so by sort of marking people with appropriate RFId cards. This will assist the authorities to keep the track of the overall entries into a metro station, some bus, or even some building complex.

We set two unique identities into the RFId detection system. This enables the RFId controller to detect if the card is in its vicinity and can be used to either raise an alarm (not recommended) or send the details to a larger database system.

# FEATURES AND FEASIBILITY

SENSOR	PRICE
NODE MCU	₹100 - ₹150

1. The above price is accordance with their availability in retail market. The cost might get much lower if they are ordered at commercial level.
2. Th concerned authorities can be easily alerted if a quarantined person is coming in contact with someone in the society.
3. The contact history of a specific person can be tracked back to several days based on the RF Controller data. Thus, the spread of COVID-19 virus can be tracked and possibly stopped for good.
4. The degree of fear in travelling in public vehicles or public places can be reduced as public can be assured that no infected person can enter without getting tracked and analysed by the RFId Controller.



# TECHNOLOGY STACK

TECH  
STACKS

check the mos

Hardware

RF-Id

MFRC522

Node-  
MCU



React JS

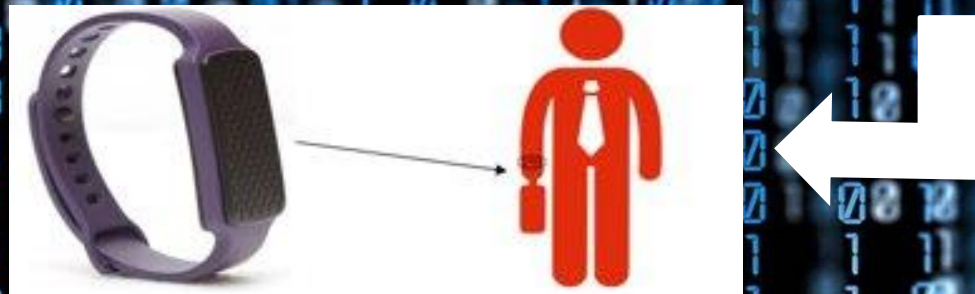


Firebase

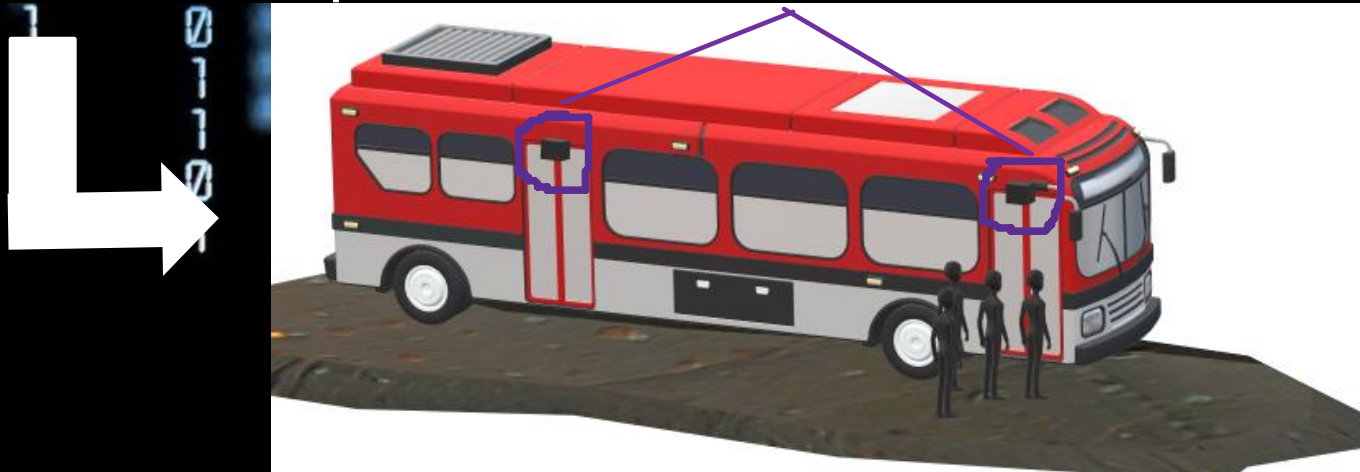
# SOLUTIONING

We initially plan to deploy the system in buses, metros, other forms of public transport and large markets or malls.

The actual RfId card can be provided as a simple non-removable band



Sensors are set up at the entrance of different vehicles and complexes.

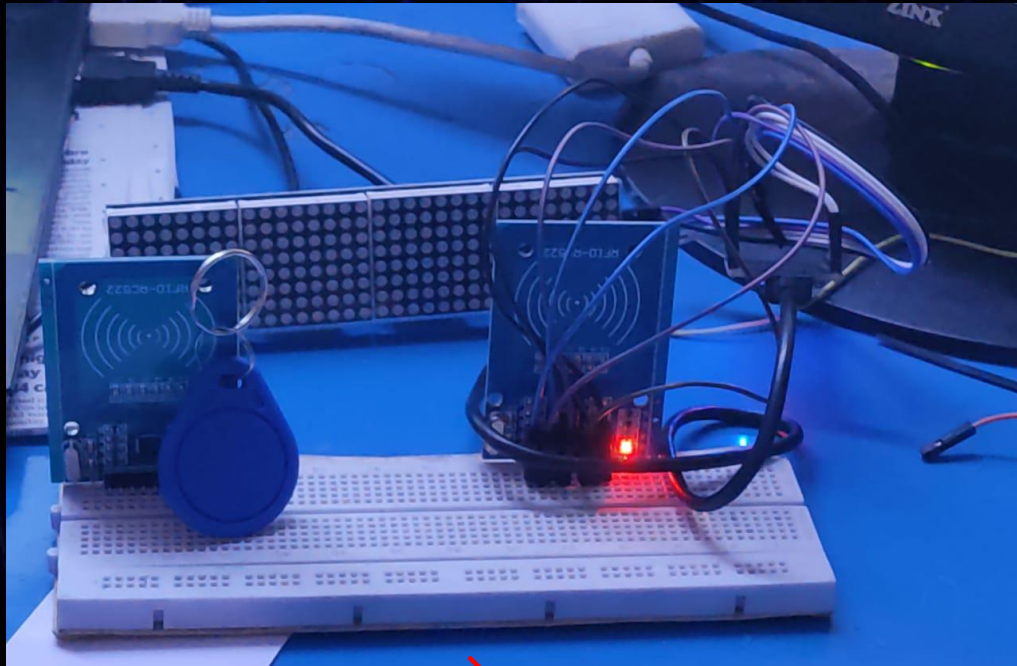




The sensors detect the RfId card associated with a user's band and show some respective output.

Here 3 cases arise :

## Case I : Clean



Activities Google Chrome Mon 1:40 AM

localhost:3000/dmrc

Vigil-19 Covid-19

Home

Delhi Metro Rail Corporation

Delhi Transport Corporation

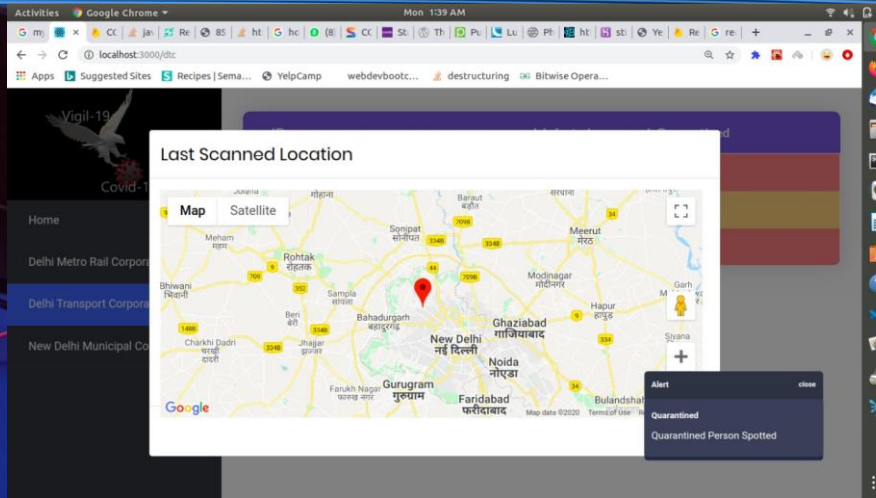
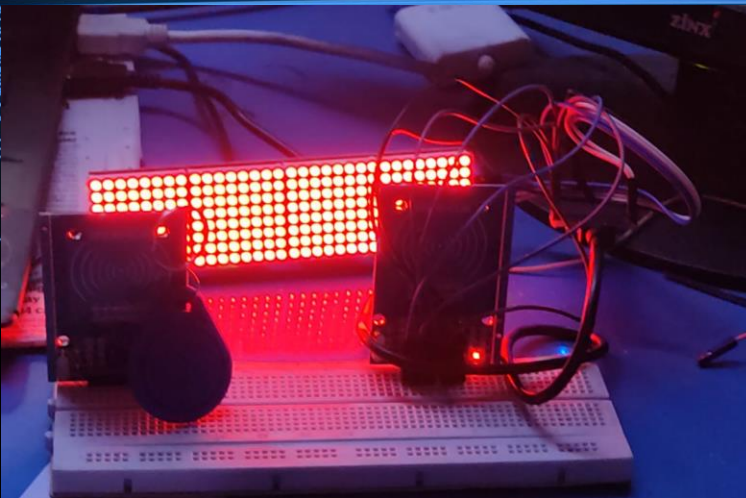
New Delhi Municipal Council

ID	IsInfected	IsQuarantined
599	No	Yes
756	No	No
597	No	Yes

No warning issued

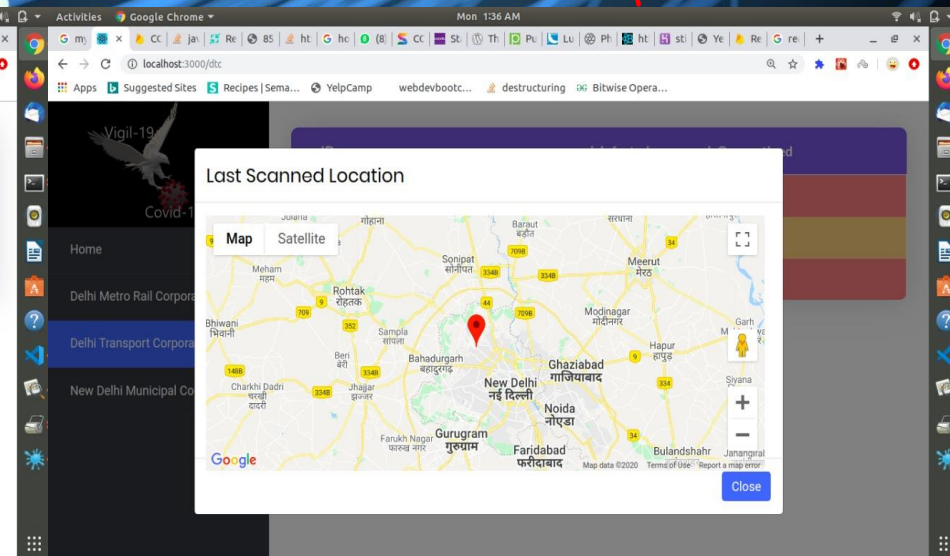
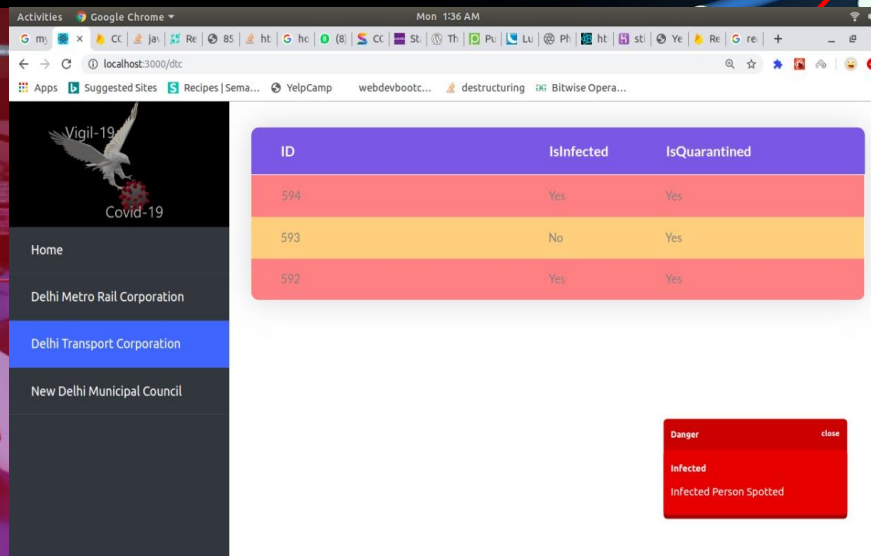


## Case 2 : Quarantined



Warning issued with exact location

## Case 3 : Infected





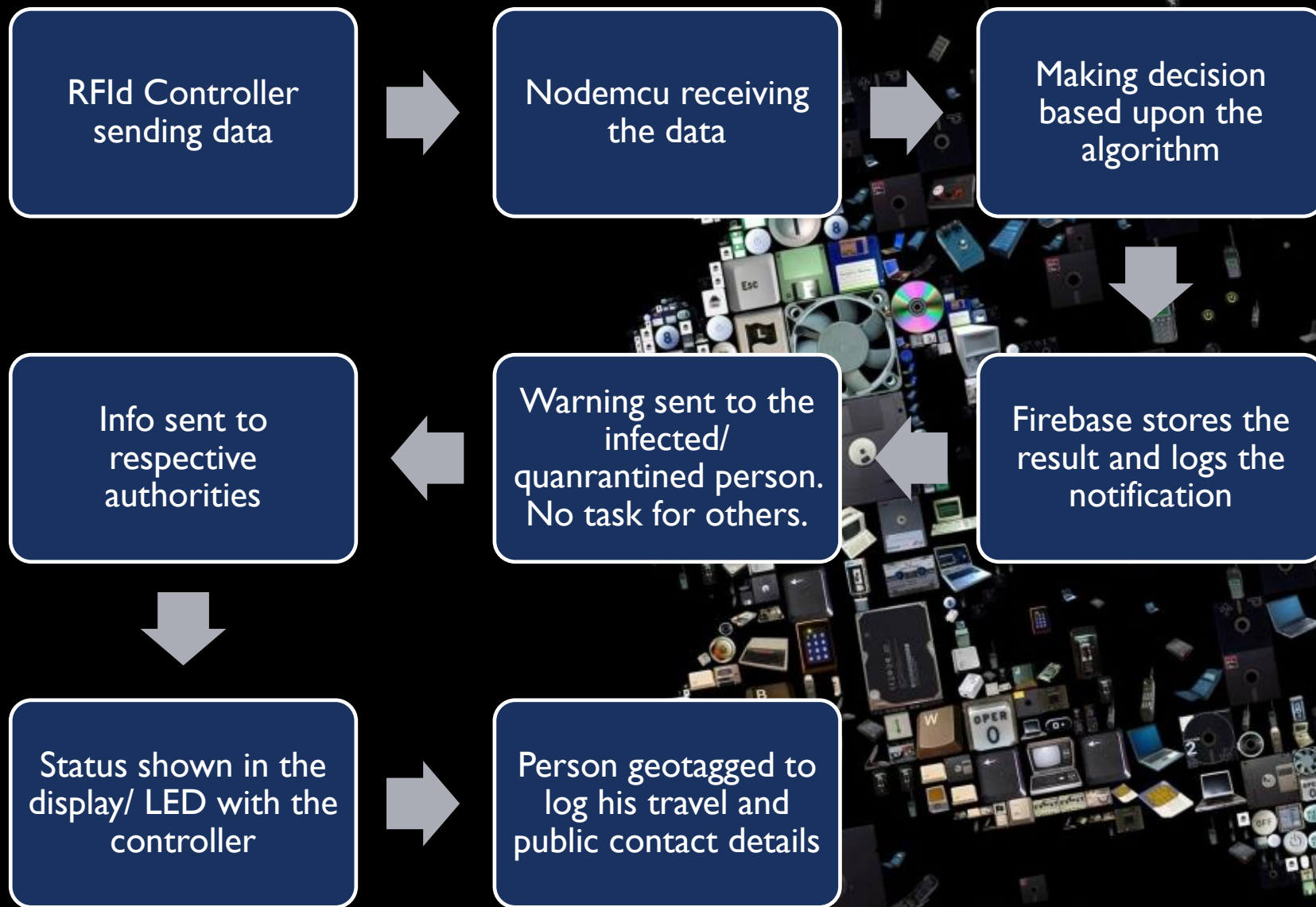
Through this band we can also track the following activities and log the contact history of person to actually stop the spread of the disease.



We can also track a large gathering of people by capping the maximum number of persons allowed in a certain physical space







WORK  
FLOW

# ADVANTAGES

## Crowd Control

- Capping the maximum no of people gathered in a particular space

## Outshines the limitations of ML/ AI and Computer Vision

## Affordable

## Tracking the contact history

## Can be used with Government issued identity cards

## Can be used with the entire population

- The status of the card can be dynamically changed

## More efficient than

- Manually checking the body temperature
- Marking specific localities



# FUTURE EXPANDABILITY (SCOPE)

Mobile NFC coils can be programmed to read the RFId cards. This will provide a portable reader in case the system has some error. This can also translate to a much wider implementation.

In near future, with rapid developments in Computer Vision technologies, the RFId cards can completely be replaced by sophisticated camera sensors using facial biometrics to identify a quarantined or an infected person

This system can be expanded to even more offices, malls, cinema halls, schools, colleges etc.

The system implementation can be widened to prevent the spread of the virus in larger public gatherings.

The sensors can be made more efficient by increasing their range and narrowing the frequency band.

The sensor costs can be further reduced if produced on a larger commercial scale.

# **LIMITATIONS**

The cards can  
be tampered  
with or  
damaged

The RfId info  
can be  
modified or  
hacked

The  
implementation  
depends upon  
the proper  
maintainance of  
the database  
on the status of  
infected and  
quarantined  
persons.

Requires  
internet  
connectivity