# Corona Vision

***Abstract*-** As the name suggest CoronaVision is a system combining IoT and mechanical hardware that makes it possible to track and monitor the COVID-19 patients. This system can also be used in any pandemic and national emergency. This system can identify patients from any crowded place using face recognition. The database will also help track any person’s health records.

1. **Introduction**

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OVID-19 is declared as a pandemic in 2020. Due to this whole human existence has been affected and came immense danger. Humans are locked inside the houses. Businesses are crashing and the world is facing a tremendous crisis of food, drugs and other resources due to the stop of in-house and global trade.

One big reason for this problem is the traceability of individuals and the identification of any undiscovered communicable disease in this modern and advanced world. We have the best technology, facilities, and systems connecting the world.

So, the world should not face any crisis like COVID-19 again. We students are thinking of making something that can make it possible to stop any crisis at the earlier stages. We are trying to combine the power of IoT with the mechanical hardware’s readily available to make the traceability of individuals and any pandemic possible.

This system will also help police to track the suspects and criminal. At the time of any pandemic, national emergency and for tracking purposes one can use this system.

Lots of projects are ongoing to fight COVID19. But Few IoT based applications that has influenced us the most are listed below:

1 Aarogya app developed by NIC India

2. The health-card tracking system in Taiwan

1. Bits and Pieces Together

Aarogya app works with the database of the patients and send it to nearby Aarogya app user and gives alert to other uses using Bluetooth.

On the other hand, Taiwan’s tracking database works with the individual’s health-card. As the data get stored in their health-card. This health-card is checked by individual stores and doctors when one visits them for any purpose.

So, combining both the ideas and along with our database and face recognition system on autonomous and IoT based ground as well and drone robots. Combining these we can create a much vivid and reliable system that can save tones of money, efforts, and human lives.

The ground robot will be able to move objects like cameras, equipment’s autonomously and can help is ground surveys with the help of either IoT or computers onboard

## Simulation software and code libraries used

There are few software’s that has played vital role in the overall system. Namely Python, Gazebo, rviz-ROS, ROS kinetic and the code, UBQET, Ubuntu 16.O4, Rasbian OS, CoppeliaSim Edu. Libraries that are involved are:

1. Python are Pandas Python, TensorFlow, Keras, NumPY, Open CV, Google Colab, AWS robo maker etc.
2. ROS libraries are ROS rviz, gazebo, ROS PYTHON, C++, ROS CPP & ROS PY

Electronic hardware required are USB Camera, DJI phantom, Raspberry PI 3 B+, L298N DC motor driver, RP Lidar Sensor, infrared thermometer, Alexa or google home.

1. **WORK FLOW AND WORKING**

**Step** 1: At first Persons with COVID 19 + cases have to show their Aadhar card (as Aadhar card is national identification card and is common to all) and face at the scanner so that the face matrix will be created.

**Step** 2: A profile will be created containing the Aadhar card number, name, face matrix and rest details from the card. And the user will tell the phone number to help to track and contacting if necessary.

**Step** 3: Ones the database of the person is created we’ll be able to track the person using the mobile network. And if necessary we can find the person in any crowded places using the cameras available in ground rove and drone.

**Step** 4: Ones we can recognize the person we can share the location of the person to the ground control team.

**Step** 5: Using a mobile network we can even track the person whom he /she had met in the past or has crossed recently. This will help to track the person who has the most chances of getting infected

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Face Recognition

Text Recognition

Data

**Working**

**FACE MATRIX PREPARATION:** Face data of patients and suspects are stored in the form of a matrix. This face data matches with the face data that is stored in the Database.

**FACE TRACKING:** The drone camera detects the midpoint of the face and it tries to minimize the distance between Drone Camera Midpoint and Face Midpoint with the help of drone’s PID controller. Thus the drone tracks the criminal.

Face Scanning is completely based on face attendance system. (Links are as follows <https://github.com/debanik123/Face_attendance>).

1. **Results**

This system will help monitor and track the patients at ease. Algorithms working behind the vision is vivid but reliable.

A successful demonstrated system is made and is linked in github.com for reference. (Link is as follows <https://github.com/debanik123/CORONA_VISION>)

1. **CONCLUSION**
2. Criminals detected with 88% accuracy. Drone follows to criminals Send Picture, information, and location some issues faced during the project: Wi-Fi range Short battery life Face Alignment problem
3. Ground robot based on RPLIDAR&SLAM and Deep Learning (ROS) corona fight robot. When we are given the goal position then robot tries to reach the desired position with obstacle avoidance. Step:-

1.cd catkin\_ws

2.cd src/

3. Past the mowgli folder

4. cd..

5. catkin\_make

6.source devel/setup.bash

7. ROS-launch mowgli.launch

8.we shall move the robot with the help of teleop twist keyboard and map of the environment created.

9. After creating the map we need to save the map. With the help of this command rosrun map server map\_saver -f test map will be saved.

10. ROS-launch mowgli map. Launch With the help of this command robot can move at goal point with obstacle avoid.

1. Face-attendance system and Aadhar card scanning using Image processing. In this section We are going to propose you the Aadhar card scanning and data storing and face attendance system. We have developed an innovative project using Advance Deep Learning by incorporating their insights from Machine Learning curriculum that facilitates direct uploading of government corona attendance through excel/csv files.