# Intelligent Post-Lock Down Management System For Public Transportation

## Project summary

This project is to help the transport system(mainly bus) maintain social distancing norms under the surveillance of CCTV cameras which would be giving live video as an input to an artificial intelligence based system that would return a pop up message to the bus driver. This pop up message would be the indication to the driver that the quantity of the people that is appropriate for maintaining social distance have been accomodated in the bus and now it's the time to close the door of the bus. So that the overcrowding can be avoided. It can be understood as if we consider that the bus on normal days can accommodate each passenger at a seat , now due to social distancing the seats will be acquired by the people with a one seat gap . So according to this if the quantity reduces to half of the people the system would give a pop message to the driver when half of the number of seats would be occupied.

Now , since this would result in a great inconvenience to the people who would not be allowed to enter the bus , we have also planned to develop supporting software for them. It is explained as below:

This software can be accessed by a person through a link which would redirect the user to the overall details of the buses that would be taking stop at the bus stop on which the person is recently located. So if due to full occupation , the person was not supposed to enter the bus , here comes this software which would be accessed by the user in such situations. When the person would go to the link , it would ask the user to allow accessing the recent location . Upon tracing the location , the software would return a chart that would be consisting of all the details of the nearby bus stops , this

would help the user to know about the buses available. As it is a matter of questioning what is new with it?

Because a person can also get this details through the bus stop managers who provide tickets. But the main advantage of this project over the recent situation is that since there would be a lot of people waiting for the next bus and if the people would gather at the ticket stand and ask for the details , it would turn out to be very dangerous for the citizens. So this software is precisely concerned with the safety of citizens.

Moreover there is another valuable feature attached to this software.A web scraper will be there which would work as a backend to this software which would extract the information available on the articles based on the ideas to efficient transportation management techniques published across the countries. As the recent articles across different countries promote use of bicycles considering the recent situations , ideas like this would definitely take people thinking towards standing strong against this pandemic.Not only this it would result in building up morals of the people.

Now the question arises as to how these large numbers of cycles would be made available to the user so here comes the sharable bicycles with cycle stands at the different centres of the city where the people can borrow bicycles for their purpose.

Definitely the matter of concern is to have those bicycles back at the centres so the person can return the borrowed cycle to any of the bicycle stands nearby.

There will also be a location tracker attached with the bicycle borrowed to avoid any misuse of the bicycle.Moreover , if there is a person who wants to donate the cycle to this system can register themselves at the administration panel so that their cycles could be registered on the panel.

All details concerning the bicycle, owner of bicycle and the borrower will be kept in surveillance under this system through the admin panel to avoid any of the irregularities.

The system would also provide the nearby details of the bus stops.

Since the world is going through this life taking pandemic , people need to have information of the nearby hospitals and paramedical centres at the top most priority.

So here we come with another facility that would be provided by this software and that is the nearby paramedical centres to the user.

So concluding this software , we want to highlight these points:

- All the information provided by the system to the user would be under the control of administration panel so that only the certified and authorized information should be conveyed by the system.

- All the requests regarding the information about nearby bus , cycle stands or paramedical centres would be requested by the user at the user panel.

# Project requirements

To make this project knowledge for following tools and techniques is required :-

Machine learning
Data Science
Deep learning
Deep learning networks
Watson Assistant
Watson Studio
Node red pmsql cloudant
Node red editor
Pedestrian Detection

Image Processing

Tensorflow object detection api

## Functional requirements

Proper access to the api credentials

Proper connection with node flow editor to ibm tools.

Connection with tools to the services.

## Software and Technical requirements :-

Technical requirements :-

Windows 10 pro ( 64 bit operating system) , x-64 based processor

Python 3.4

Anaconda cloud

Modules need to be imported :-

Open -cv

Tensorflow

cascade classifier

Requests

Selenium

Urllib3

Scrapy

Api need to be used:-

Location detection api

Tensorflow object detection api

## Project deliverables

The artificial intelligence system would detect the video provided by the cctv camera and would calculate the number of persons present in the bus and would give the pop up audio message to the driver in accordance to the capacity of the bus.

The other facility that is to provide the required information to the user will be based on the web scrapers developed by us that would fetch the data from different available sources.

A web scraper that would crawl the websites which publish the articles on the measures to manage public transportation after lockdown across different countries

And would provide the corresponding information to the users to enrich their knowledge. It would provide the location and details of the nearby bicycle stands , bus stands and paramedical centres.

This would definitely help in building promising outlooks for a most feasible transportation system that could better deal with the norms of social distancing.

## Project team

We are a team of two members constitute members as follows:-

1.Yashi Chourasiya , 3rd year student of Nit bhopal

2 . Siddharth Kajle , 3rd year student of IIIT Bhopal

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## Work and Summary

| Task | Status | Assign | DateCom. |
|---|---|---|---|
| Understanding of python module | Completed | Siddharth,Yashi | 3/6/2020 |
| Understanding of Ibm services | Completed | Siddharth,Yashi | 4/6/2020 |
| Mask Detection | Completed | Siddharth | 10/6/2020 |
| Get user location | Completed | Yashi | 8/6/2020 |
| Near hospital | Completed | Yashi | 10/6/2020 |
| Near bus stops | Completed | Yashi | 12/6/2020 |
| Food Prediction | Completed | Siddharth | 12/6/2020 |
| Counting mechenism | Completed | Siddharth | 15/6/2020 |
| Near Cycle | Completed | Yashi | 15/6/2020 |
| News Updates | Completed | Yashi | 17/6/2020 |
| Covid Bot | Completed | Siddharth | 20/6/2020 |
| Node red Intergration of flow | Completed | Siddharth,Yashi | 22/6/2020 |