DASS End Semester

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Abstract

The Indian Government has imposed a country wide lockdown, due to the pandemic created by Corona Virus (COVID 19). This move was required, and to end this pandemic the guidlines given must be followed. But many people are not following it, and these people need to be caught. Our sofware system is the one that utilizes the current infrastructure and uses face recognition to detect people and penalize them as required.

Introduction

Corona Virus (COVID 19) has created a global pandemic as it is a virus with mortality rate of over 4%, having already killed millions of people worldwide and spreads via air and contact and to add to the problem at hand, there is no cure in sight. Hence, the global lockdown needs to be obeyed for the pandemic to be over.

Literature Review

There are many studies going on to find the cure of the Corona Virus, each looking at the similarity in structure of the virus with that of SARS COV (also known as Corona Virus), and trying to make a cure by modifying drugs made for the original Corona Virus.

Detailed study on the structure of the virus is also carried out, which enables people to know what preventive measures to apply. For example, the lipid bilayer which is essential for the survival of the virus can be killed using soap. This information was known after knowing the structure and formation of the virus.

Software companies like Google and Apple are probiding technologies that can, using bluetooth, that can do contact tracing (Corona spreads via contact) and is also providing APIs that can do the same.

These are some of the ways in which many leading scientists and sofware companies are helping fighting the Corona Virus.

System Architecture

The software solution proposed in the paper is completely software based with no extra hardware infrastructure required and can be implemented without any modifications.

Concept

The concept behind the idea is that people behave more when a monetary penalty is associated with the negative result. Hence, if a person is barred from going outside with the penalty of say Rs. 5000, they will not do it unless absolutely necassary. Of course if there is a genuine reason of going outside, no penalty will be applicable.

The idea is to monitor the amount of time spent by each person out of their homes and penalise (monetary) accordingly with the option for them to appeal the penalty within reason.

Pipeline

The pipeline of the system is as follows:

There are many cameras on every crossroads in India, and are already used to find culprits who are not wearing helmets (or other such trafic violations) and memos are sent to their house. The same structure can be used to monitor vehicles and people.

Everytime the camera detects a person, it gets updated on the database managed for each person uniquely identified using the Adhaar card information (Which has both, the photo of the person and the identification of the vehicles owned under the persons name).

After that every weekend, a memo is sent which contains the amount of money default. People can also see the total amount they owe using a webpage which uses Adhaar ID as the login information and also gives an option to appeal the penalty online.

Payment can also be done via the portal provided in the web application. The person can pay the amount wanted, which will be deducted from the total amount owed.

This is the basic working of the application.

Users

The users of the application are the defalters (check their amount, complain and pay) and the people who send out the memos. As the whole system is automated no third party is required.

MVC

Model

The model in this system is the database that stores the amount of times the person is detected by the camera, the amount they owe and the complaints from the user.

View

The view is the web application that displays the amount (of times detected) and default amount after the user logs in using their Adhaar ID.

Controller

The controller is the application that monitors the cameras to detect which person is detected, and also the user who can complain.

Interactions

There are two ways by which a controller would update the model, which would in turn lead to the view being updated. The ways are :

- Contoller detects a person, then it identifies the person using either their photograph or using their vehicle ID, and using that ID, updates the amount seen by 1, which then results in the amount owed feild also being changed.

- Controller wants to complain against an offence against it, which leads to the model updating the complaint feild.

- Controller pays amount which is deducted from the amount due and is updated in the model.

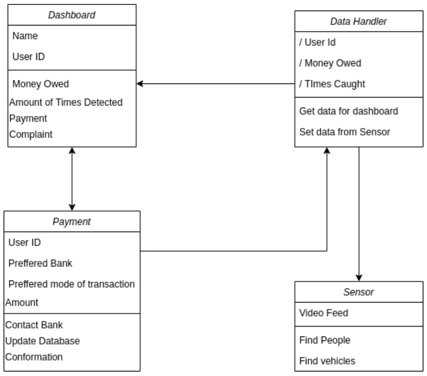
Every change in model leads to change in view.

Updation of the Database

Database is updated when the controller intercts with the model. The instances of the same are given above. No other method can change the database.

Diagrams

UML Class Diagram



This diagram gives a basic idea on how the classes are generated and how they will correspond with each other.

The classes created are :

- Dashboard
  The frontend of the web application that displays information, is a gateway to payment, and house the method to give complaints.
- Data Hander
  Handles the database and allows different classes to access and modify it.
- Payment
  Payment portal that takes necessary information from the user takes him to the banks website for payment and reports if the transaction was successful.
- Sensor
  Automated machine that detects and updates database when it encounters and identifies a person.

fuckit

This is the significant part of your research paper, where you design the software system and explain its overall architecture. You should explain the pipeline of your system, about the various interactions between the model, view and the controller, how the database is being updated etc. We expect a neat design that eloquently explains your system. Use classic software design principles for this, listing down the use cases and making use of UML sequence, state and class diagrams. You should present a nice blueprint of your system and convince the reader that it's an effective system and would have a high probability of succeeding in the real world.

Conclusion and Future Work

Conclude well and summarise your solution in 3-4 sentences. Talk about future work and how things can be improved in the coming times.

References

Sources :

- Apple and Goole Collaboration
- Finding cure of Corona Virus using structural similarity
- Soap as a protection against Corona Virus