Team Name : The Code Wizards

Problem Statement : AI Face Detection

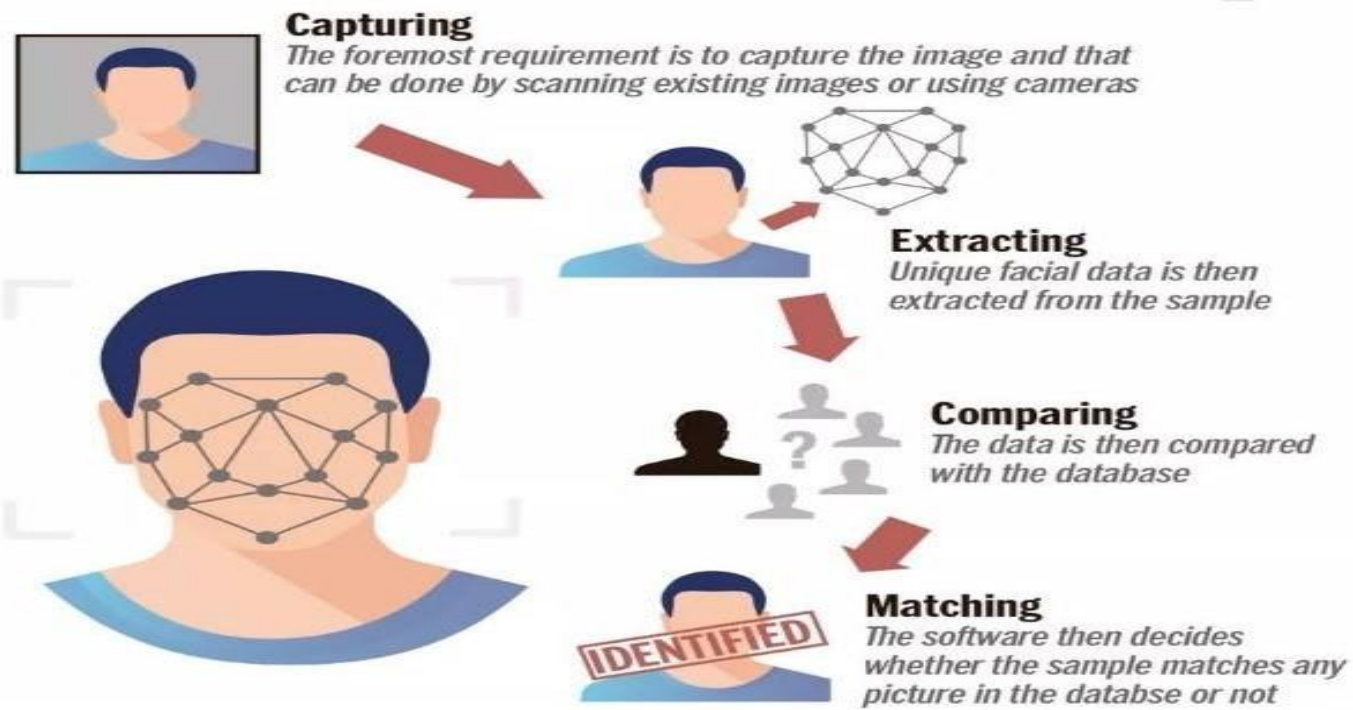
Overview Idea of our solution :

Our ultimate goal is to create an artificial intelligence model that can identify a person's face from an input with few features and provide an output that has the highest likelihood of appearing in the database for advanced surveillance.

Our model can cater to two objectives of police surveillance :-

1) Detect the face of the missing person by scanning through the police databases and various social media platform.
2) Recognize suspects and identify the criminals at the scene of an event from various documents or information available.

Overview of Proposed idea :



Methodology:

1. Lost Person/Thief/Terrorist Detection from CCTV:

We have developed an Artificially Intelligent system which uses Deep Learning in its core to identify the lost person through all the CCTV footage in the city.

The police / user will upload the photo of the lost person to be searched among all the Gov CCTV footage in the city.

The algorithm searches the presence of lost person in the CCTV footage and outputs (whatever number possible) of the footages/photos/frames in which the person is present

2. Advanced surveillance for theft and robbery and criminal identification :

We see that a lot of robbery , theft and Criminal acts have been done by wearing a mask by the criminal.

We have developed an Artificially Intelligent system which uses Deep Learning in its core to identify the actual person even though he is wearing a mask.

Normal face detection is pretty easy , as all facial features required to uniquely identify a person are visible clearly . The little more difficult is the one to identify a person who is wearing a COVID face mask , as some of the facial features becomes hidden , by wearing a mask and we need an advanced model to do that.

Little more complex is the person wearing the mask above his nose , as out of several facial features around 70% are located above the nose , and it becomes more difficult to identify him/her.

3. Web-Scraping Social Media / Website for person Identification:

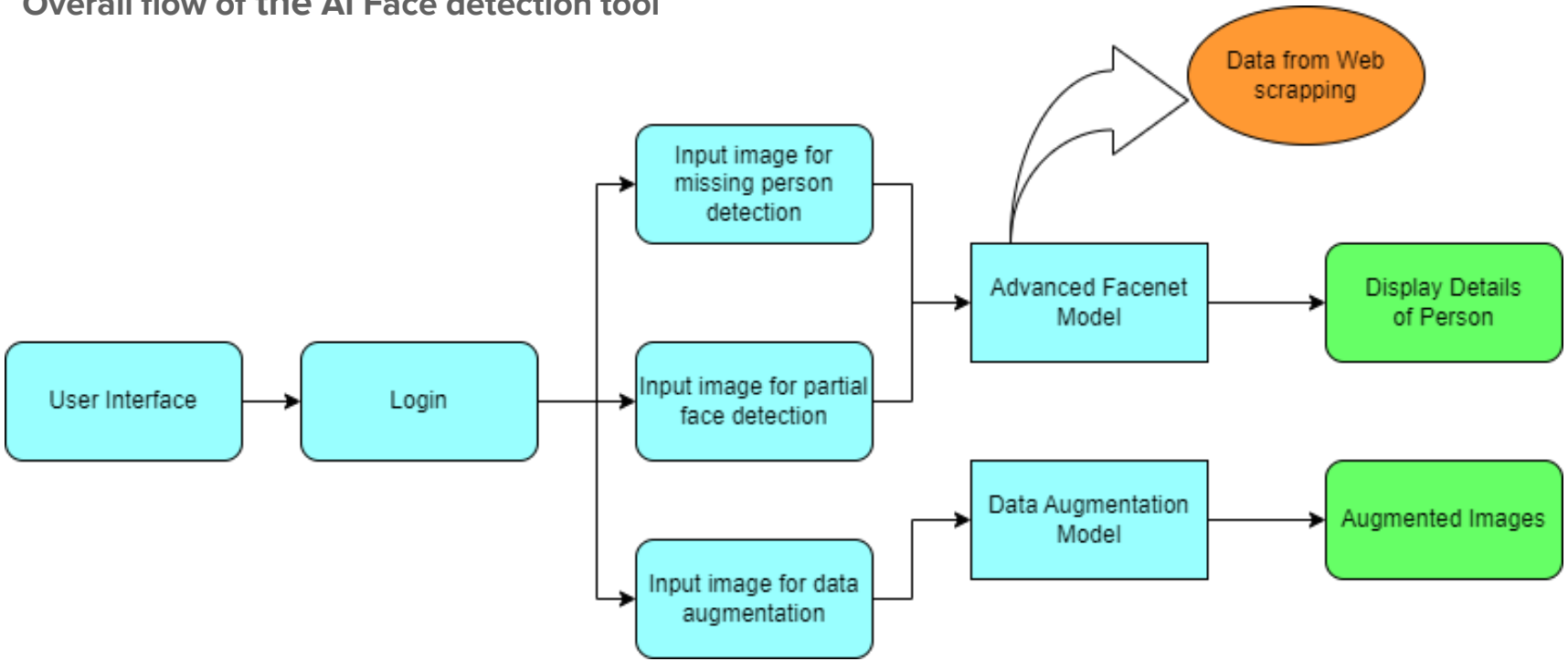
We would be web-scraping the publicly available images/data from several Social media websites like Facebook , Twitter etc. in a given locality and we would be checking those images against the images of the lost person we have , with the images and the details of social media websites , we would be able to get the location (if present in the post) as well as several details like when was the photo uploaded etc , with the knowledge of time and location.

we have simulated the exact same behaviour by creating the clone of facebook and twitter on our own and performing the same operation on these clones , If we get to partner with GOVT. entity then we will definitely get those APIs to access the details of FB , Twitter and then the same model can fit there as well

List of features offered by the solution :

1. Missing person identification using social media platforms
2. Covered face recognition and enhance surveillance
3. Extreme low resolution CCTV footage face detection and identification of missing person or criminal.

Overall flow of the AI Face detection tool



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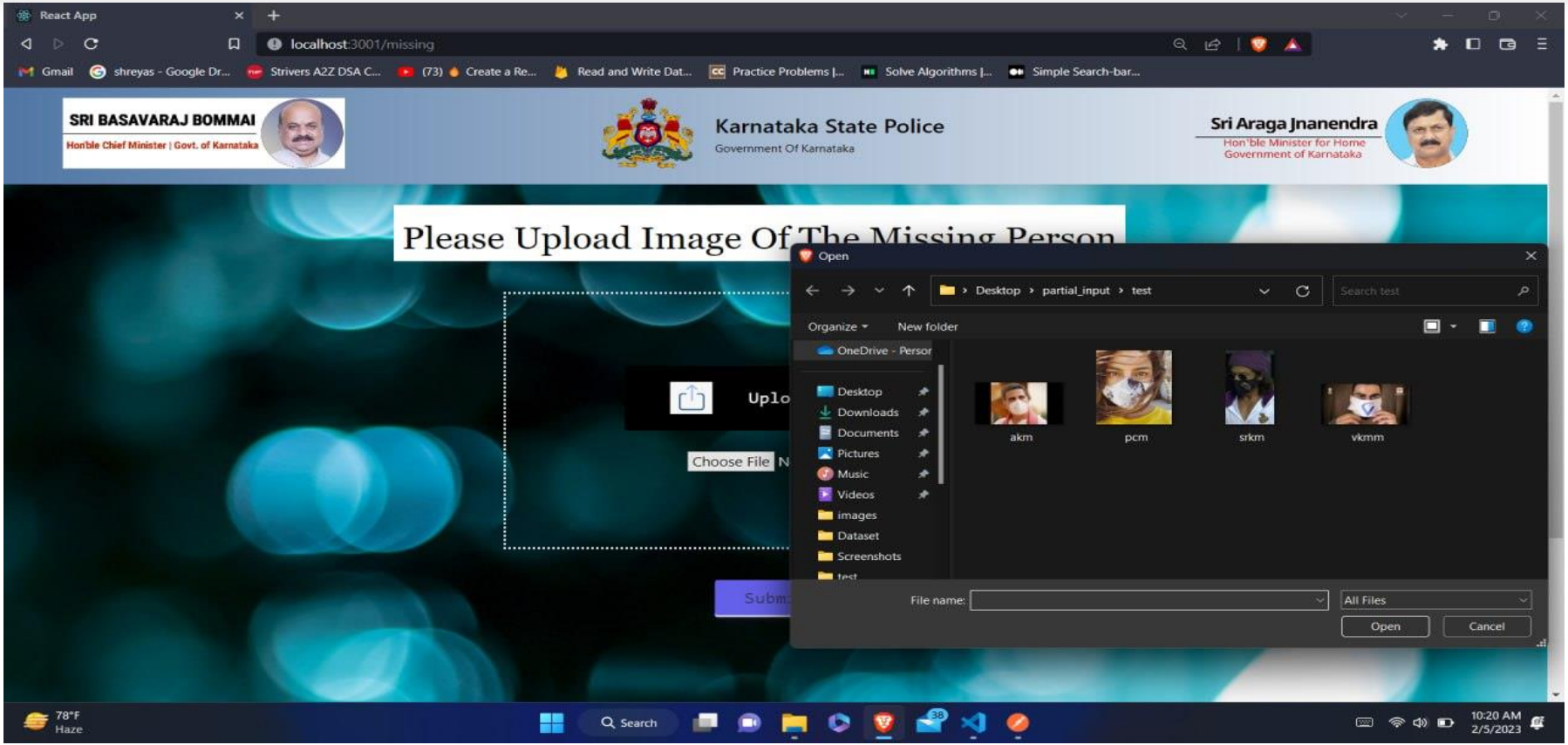

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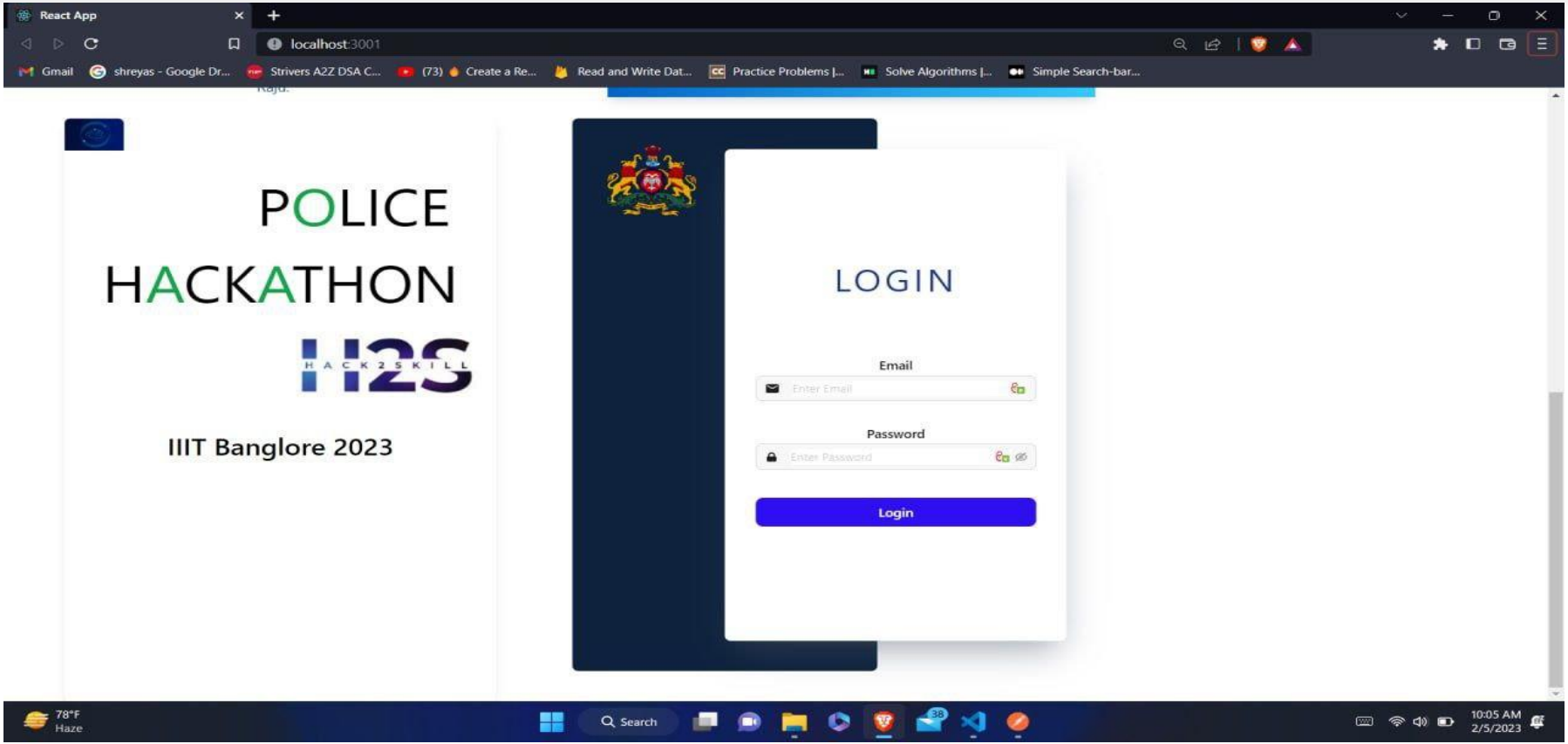

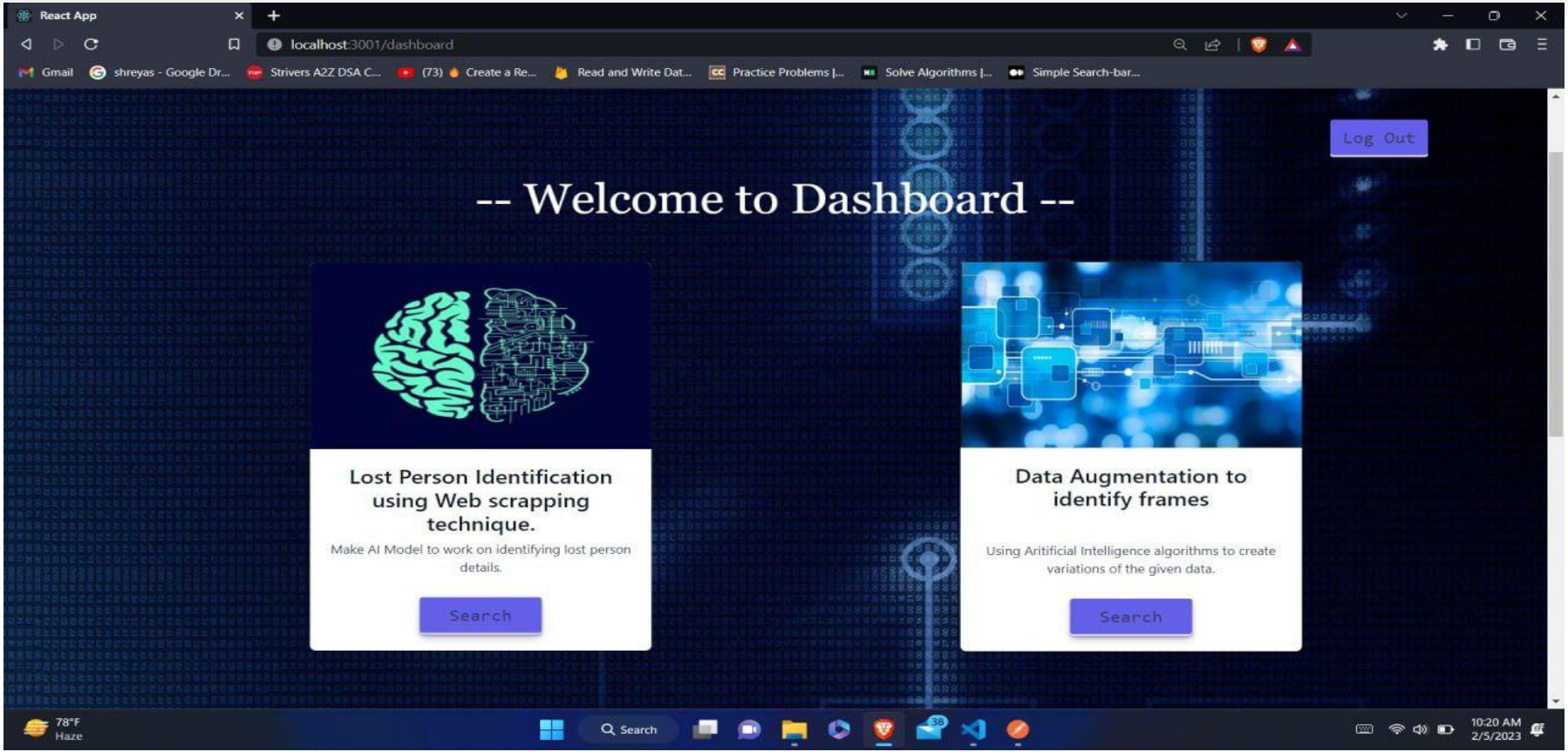
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Solve Algorithms |...
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Make AI Model to work on identifying lost person details.
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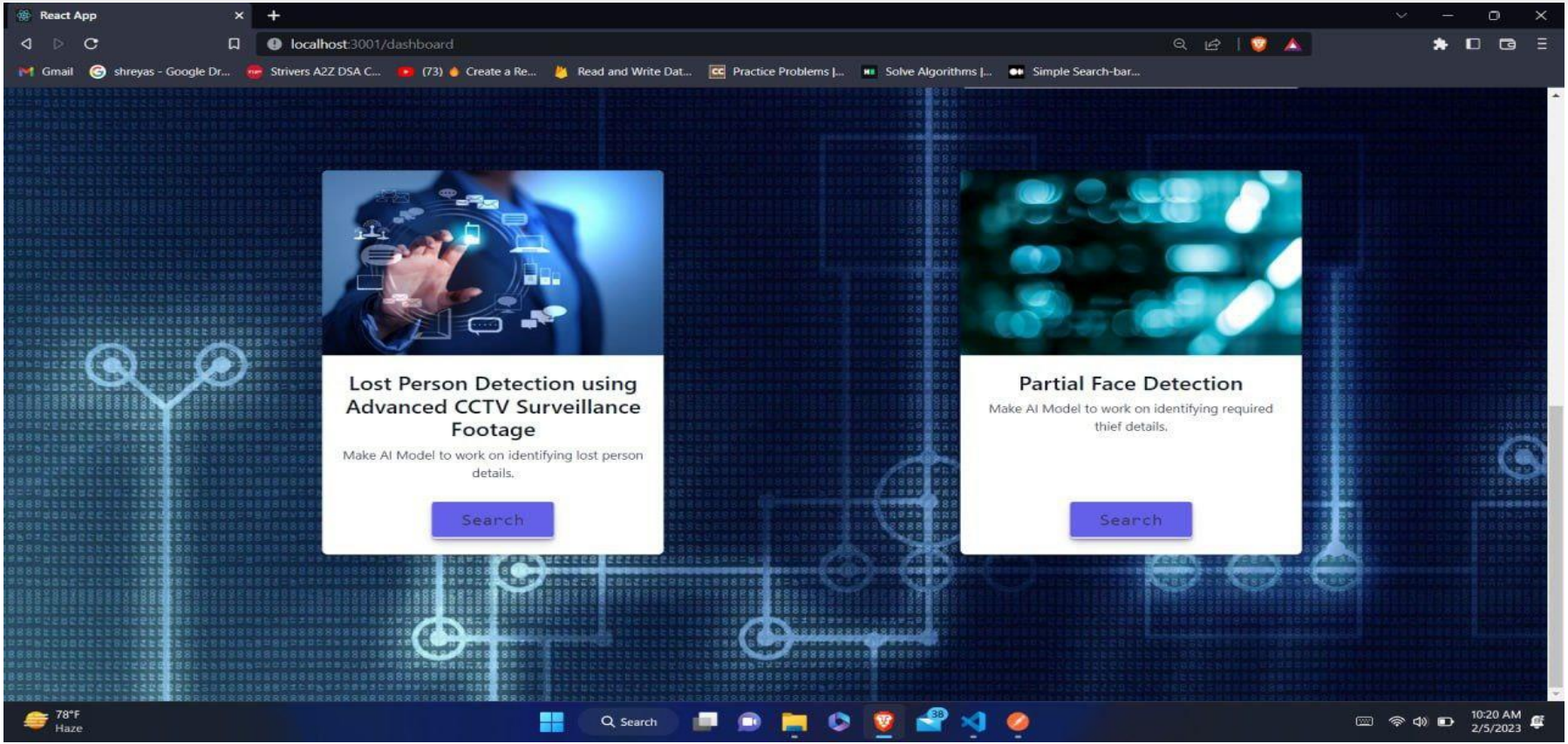
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Lost Person Detection using Advanced CCTV Surveillance Footage
Make AI Model to work on identifying lost person details.
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Partial Face Detection
Make AI Model to work on identifying required thief details.
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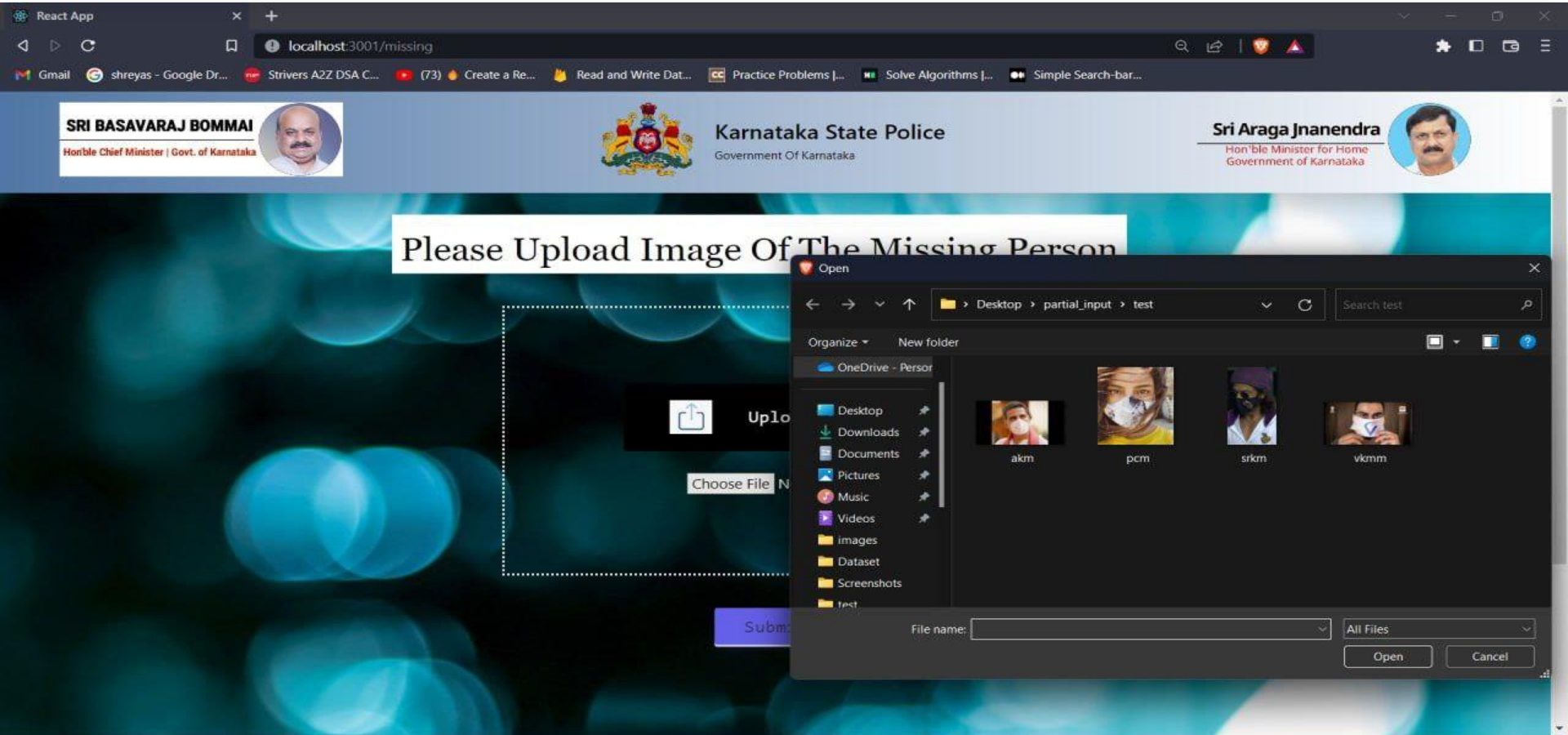

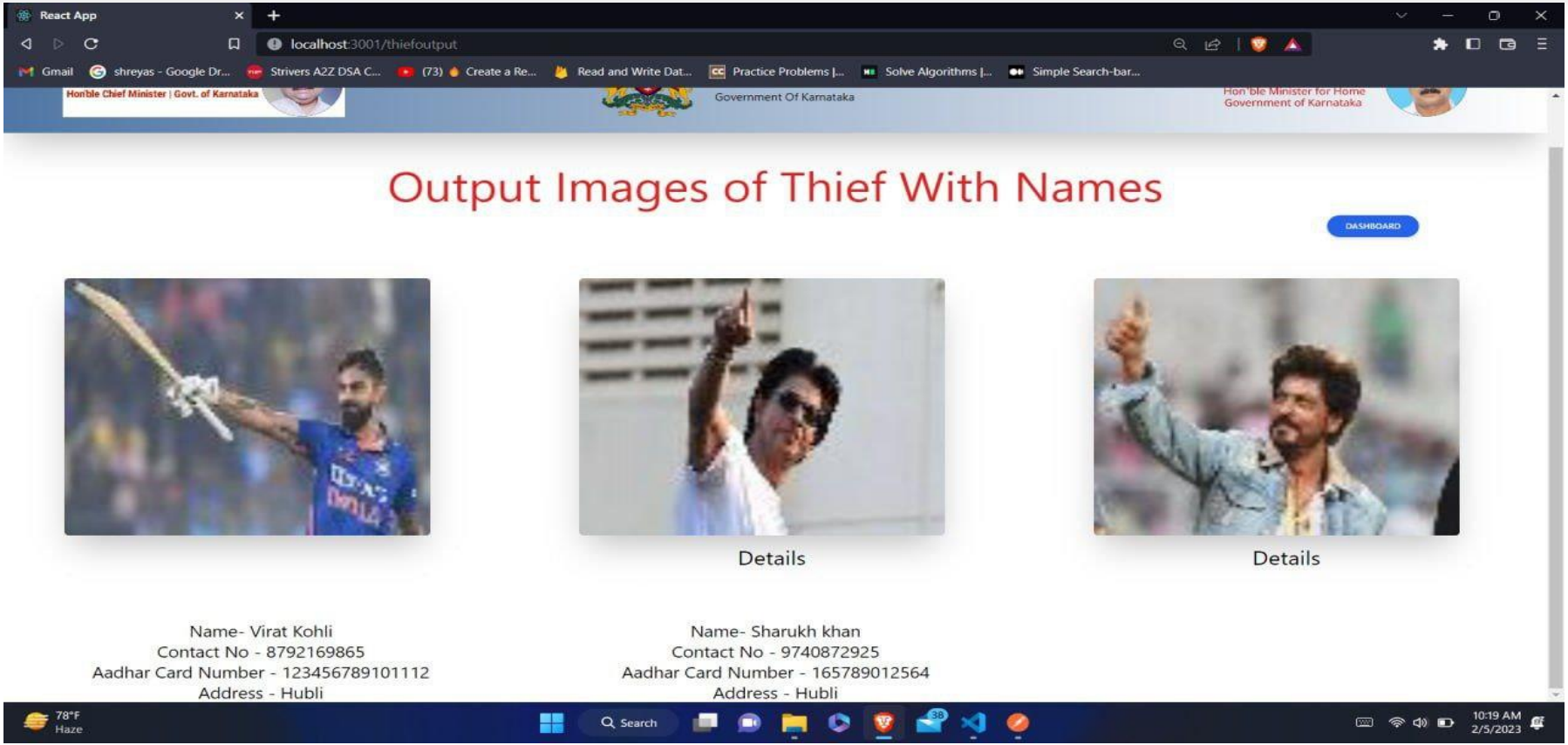
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Government Of Karnataka
Hon'ble Minister for Home
Government of Karnataka
Output Images of Thief With Names
DASHBOARD
Details
Details
Name- Virat Kohli
Contact No - 8792169865
Aadhar Card Number - 123456789101112
Address - Hubli
Name- Sharukh khan
Contact No - 9740872925
Aadhar Card Number - 165789012564
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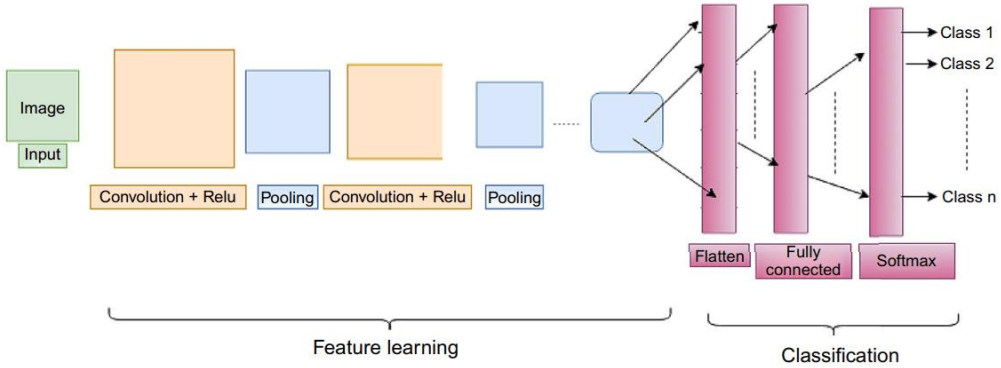
Business Logic of the solution :

1. Model training and deployment on central control system.
2. Through improved security it will potentially increase the search efficiency for the missing persons.
3. Since the need for efficient and accurate face detection is increasing, it real world scenarios it will play a vital role in security systems for missing person identification.

Technologies used :

1. Frameworks : Pytorch and tensorflow
2. Python Libraries : Keras, Opencv, Pandas, Numpy,Beautiful Soup
3. Web Scrapers : Scrapy, HTTP, Javascript.
4. Database: mySql.
5. Architecture : Convolutional Neural Network



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THANK YOU