

PROJECT REPORT

Project Name: The Smart guardian

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Title: The Smart guardian

Introduction:

- India has more than 339,000 private school and 69 million students study in 247,843 private schools at the elementary level.
- Each private school has around 5-10 school buses.
- Minimum no of school buses are $5 \times 2, 50,000 = 12, 50,000$ and no doubles if taking 10 buses.
- The safety concerns for student are essential and taken care of by schools, parents and government.
- The smart notification system ensures safety of students so it has a great potential of customers.
- This will get support from parents, school authorities as well as government and bus owners.

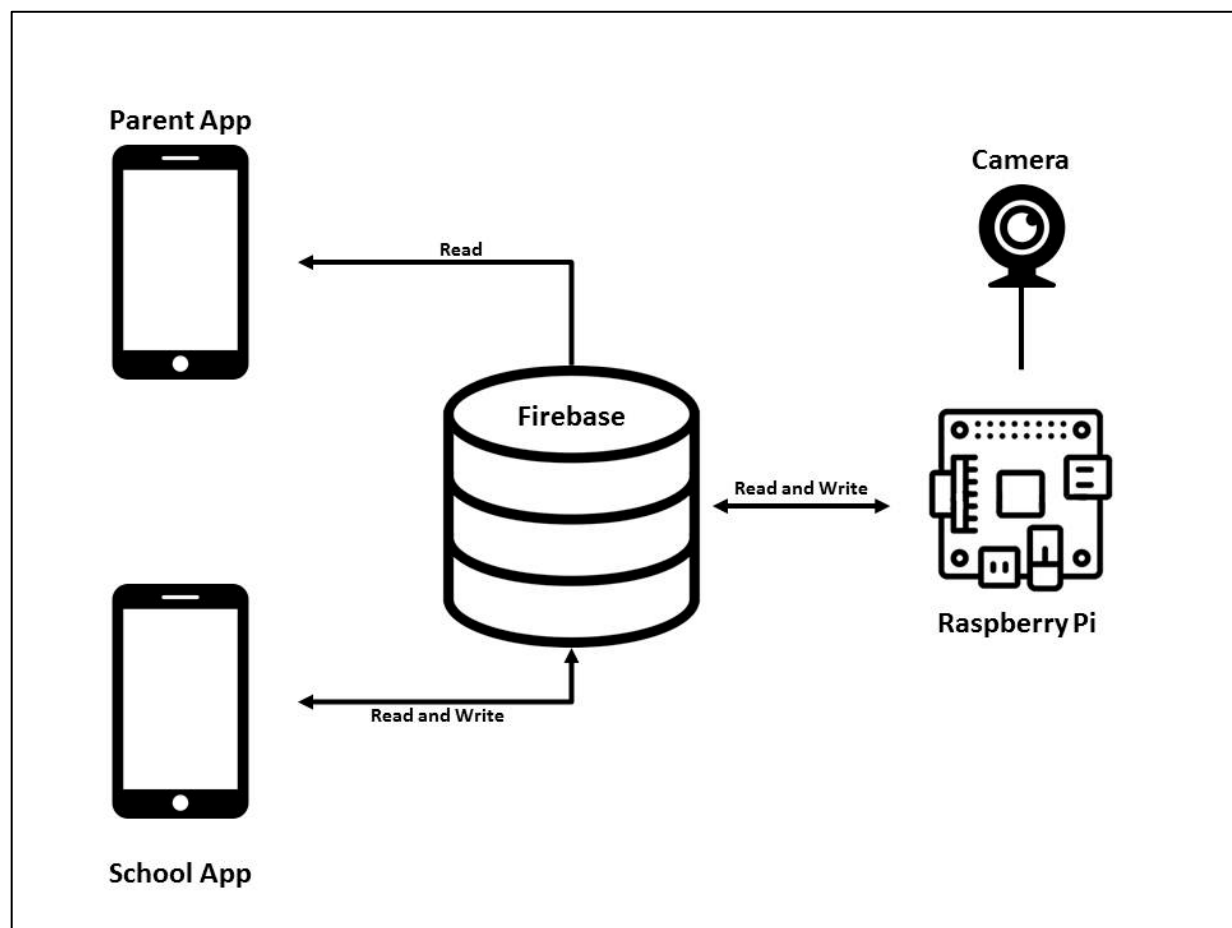
Need/ Motivation:

- Travelling through school buses, there is a general concern of parents to get informed when their child has boarded and get off the bus.

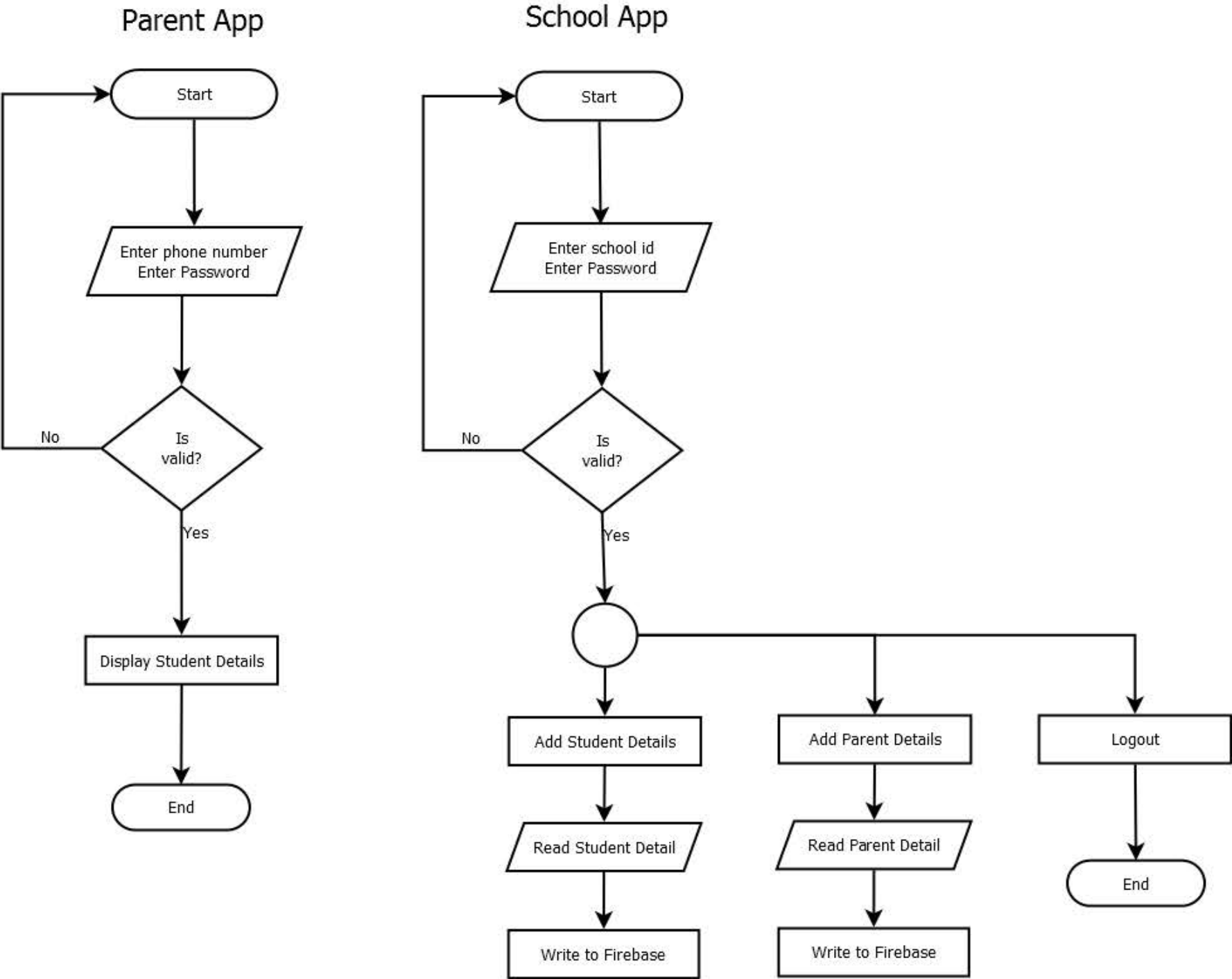
Working Principle:

- A student is register with student name id and other details and parents details by school and added to database.
- Then 30 images of a student are taken to make dataset.
- Then training of model is done.
- Then final detection and recognition is done and once recognition is done the parents id (parent phone number) is extracted from database and notification is send to the respective parents with student photo to app.

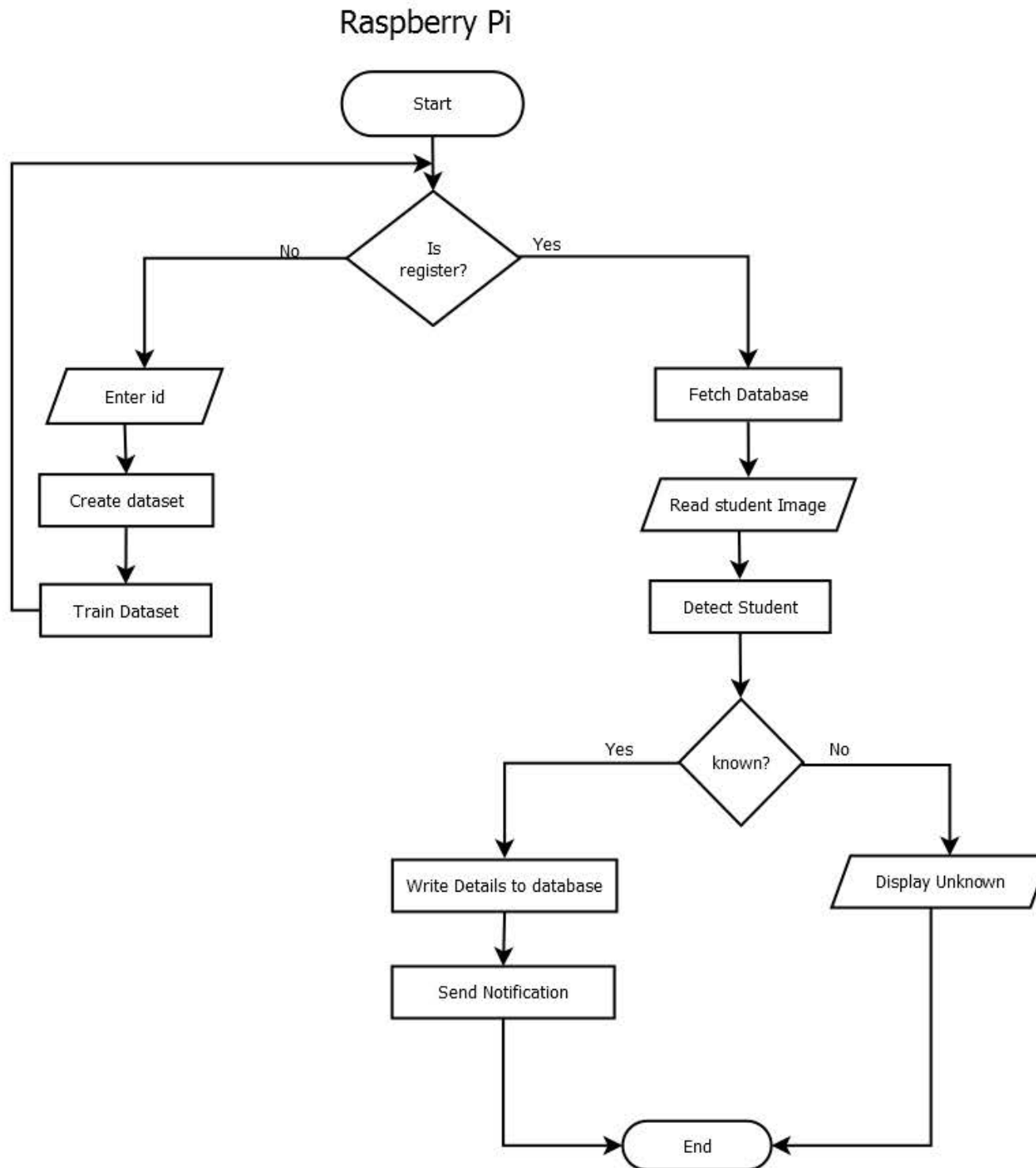
Block Diagram



Flow Chart:



Flow Chart:



Hardware/software:

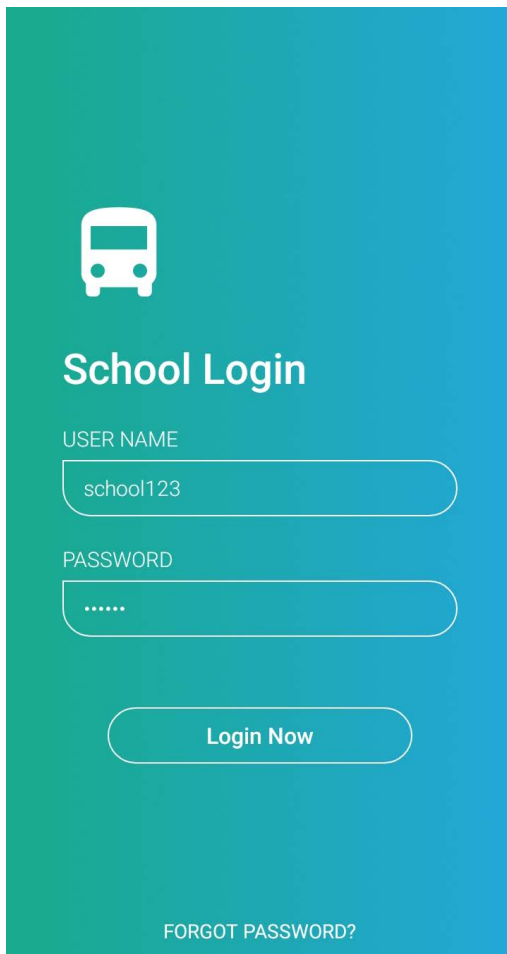
- Raspberry pi
- Camera
- Mobile App


Observations/Results

- This automated face recognition guardian recognizes the student and give to parents on mobile through app is solution of problem stated.

Pictures:

Step 1: Registration of Parent and Student from App (School App)

The image shows a mobile app interface for 'School Login'. It features a blue and green gradient background. At the top, there is a white bus icon. Below the icon, the text 'School Login' is displayed in white. Underneath, there are two input fields: 'USER NAME' with the text 'school123' and 'PASSWORD' with six dots. A white 'Login Now' button is positioned below the password field. At the bottom, there is a link that says 'FORGOT PASSWORD?'.



School Login

USER NAME

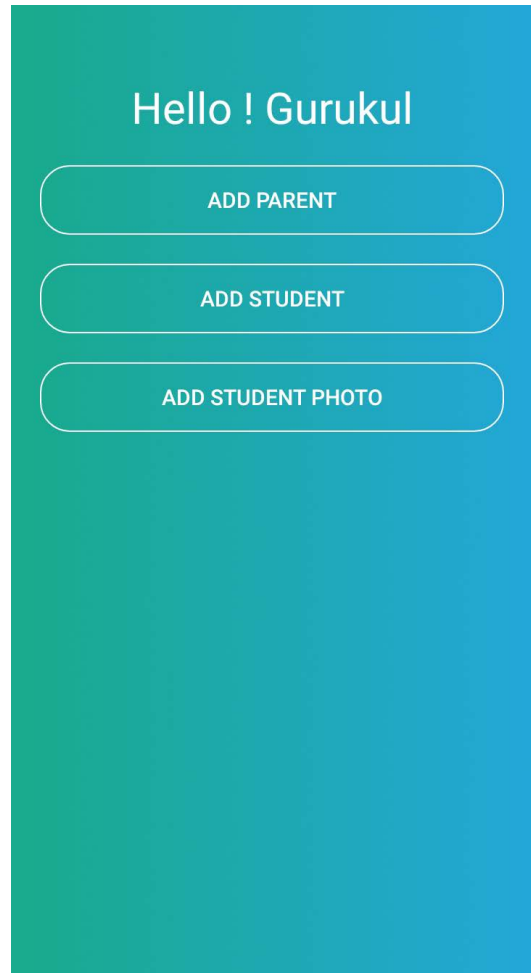
school123

PASSWORD

.....

Login Now

FORGOT PASSWORD?

The image shows a mobile app interface titled 'Hello ! Gurukul'. It has a blue and green gradient background. Below the title, there are three white buttons with rounded corners: 'ADD PARENT', 'ADD STUDENT', and 'ADD STUDENT PHOTO'.

Hello ! Gurukul

ADD PARENT

ADD STUDENT

ADD STUDENT PHOTO

Register parent with proper details

Add Parent

NAME

PHONE NUMBER

EMAIL

PASSWORD

REGISTER PARENT

Register student with proper details

Add Student

PARENT PHONE NUMBER

STUDENT ID

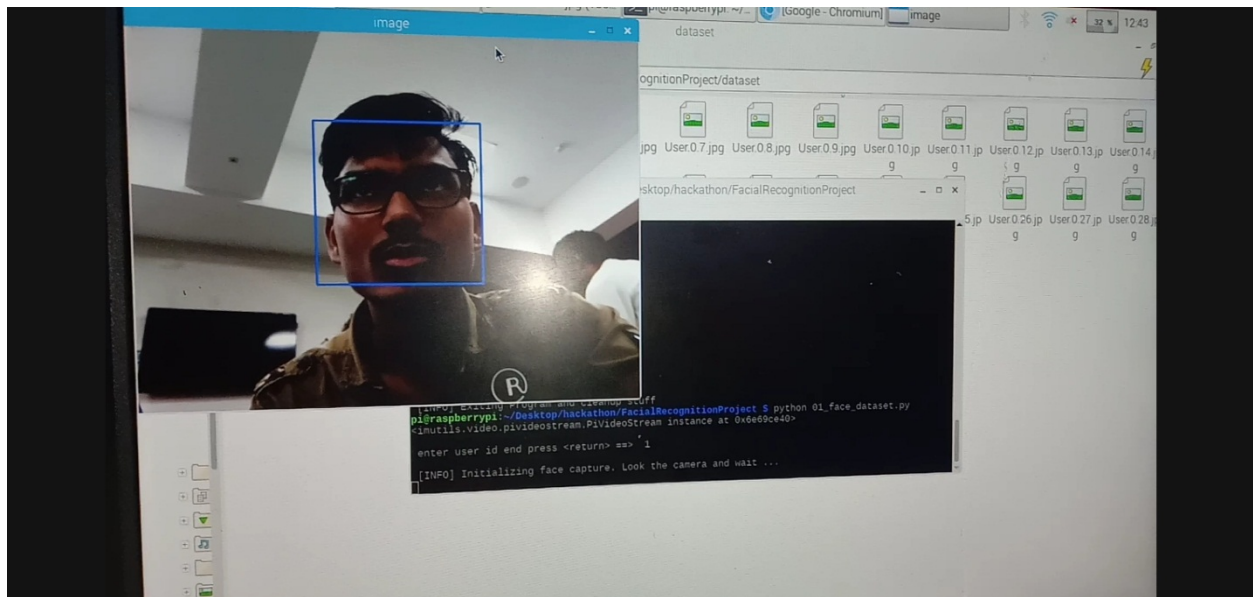
NAME

STANDARD

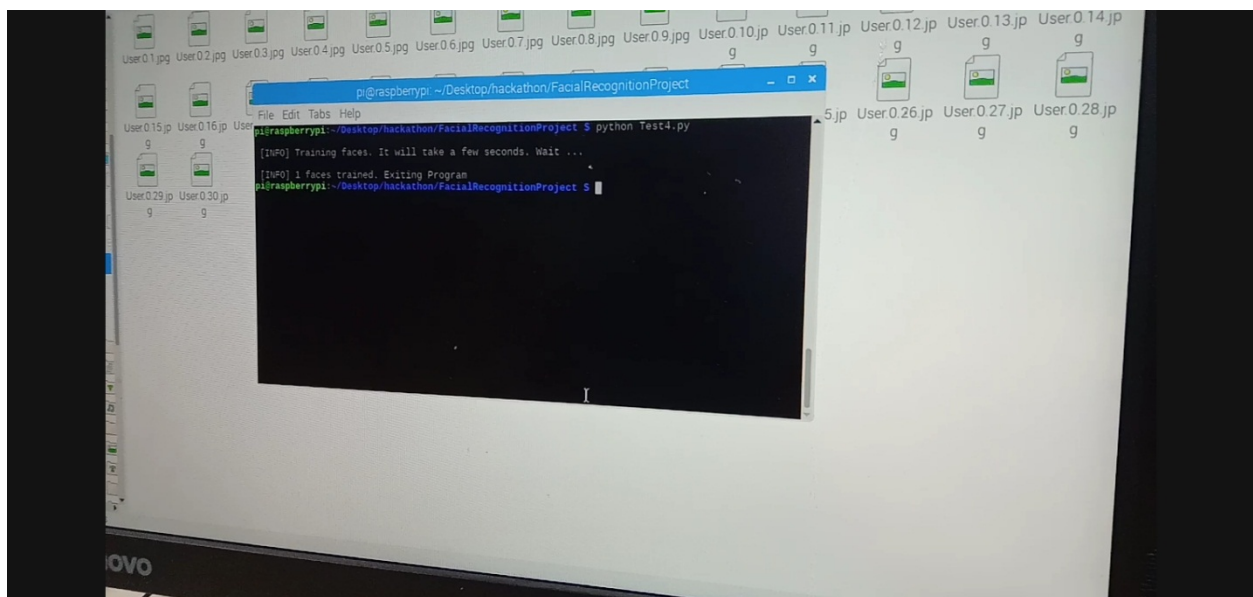
DIVISION

REGISTER STUDENT

Step 2: Capture Student photo and create dataset for training

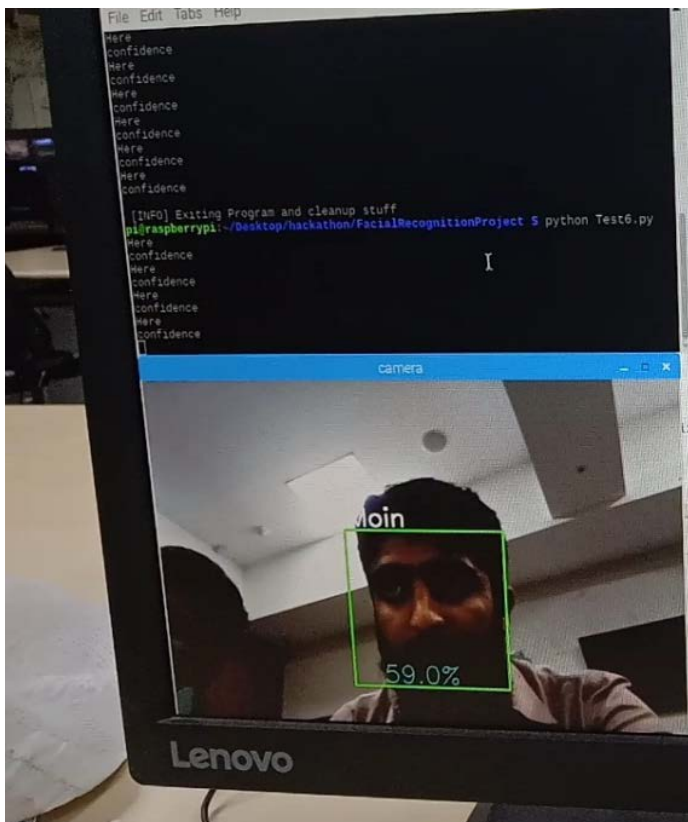


Step 3: Train

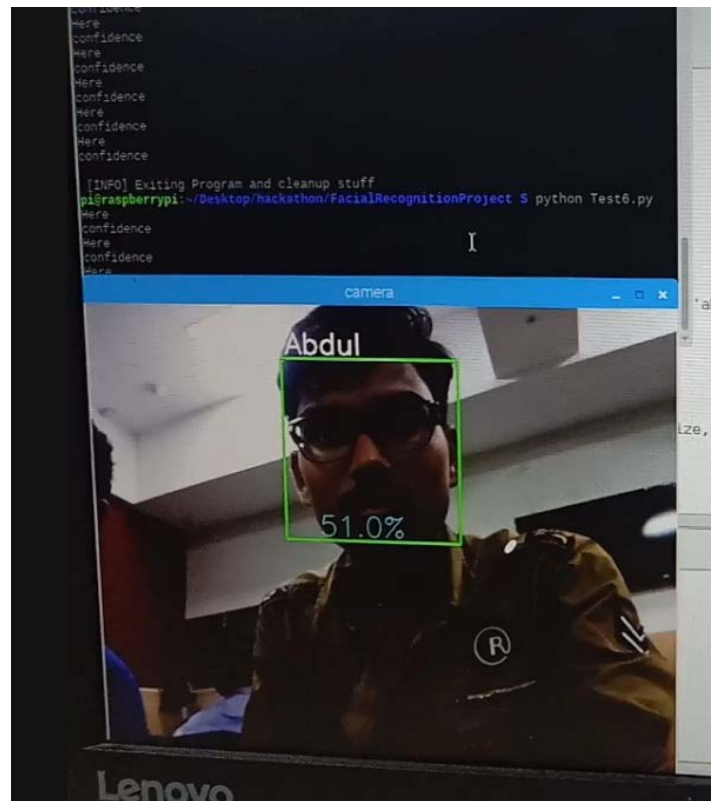


Step 4: Recognize Face

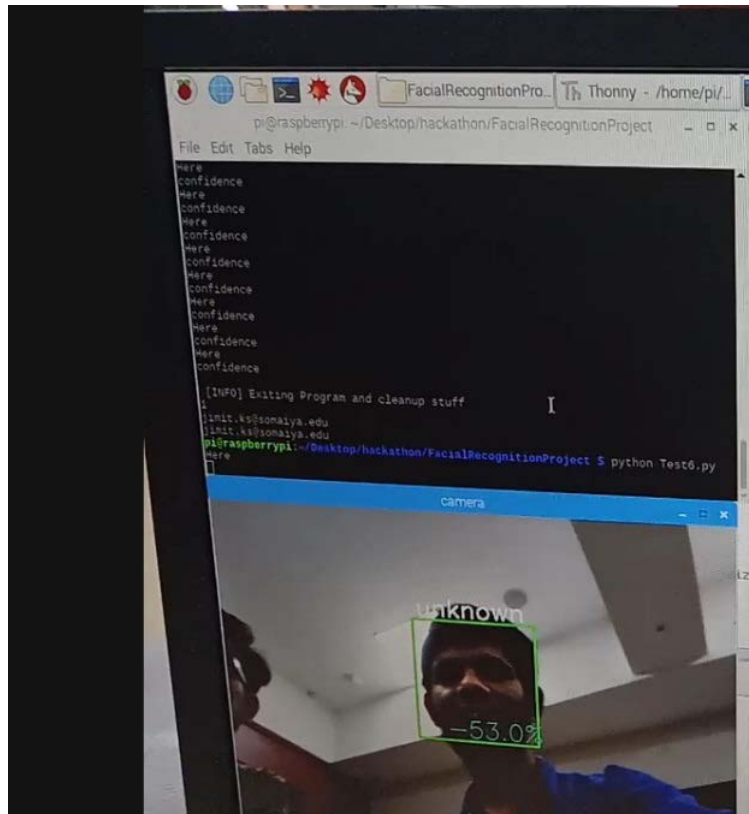
1. Recognize Moin (Student0)



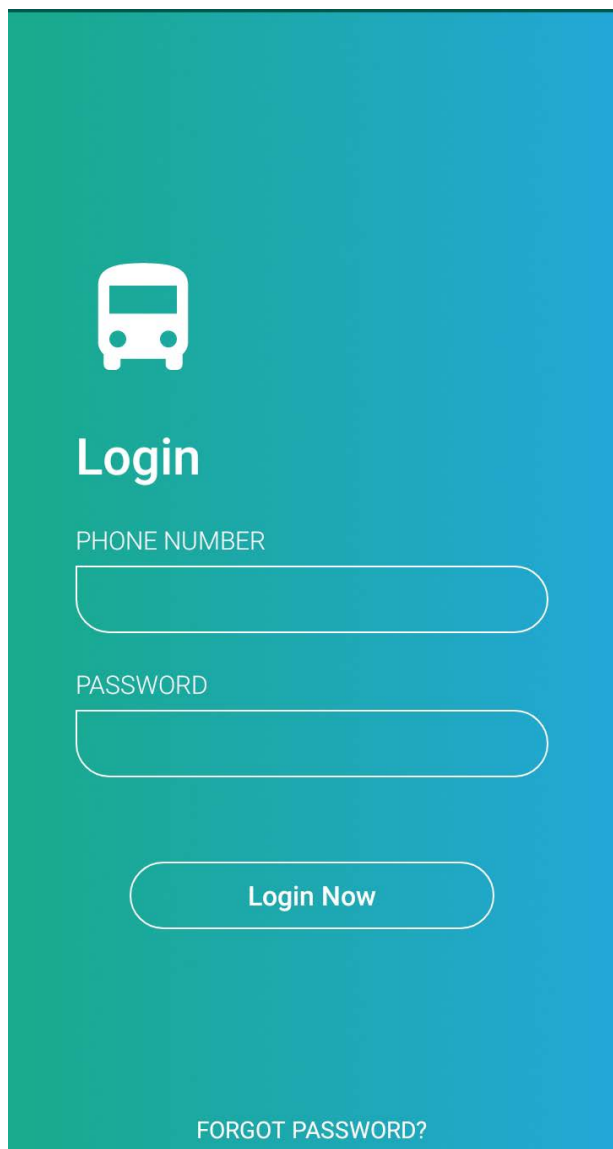
2. Recognize Abdul (Student1)



3. Recognize Unknown (If student is not register)

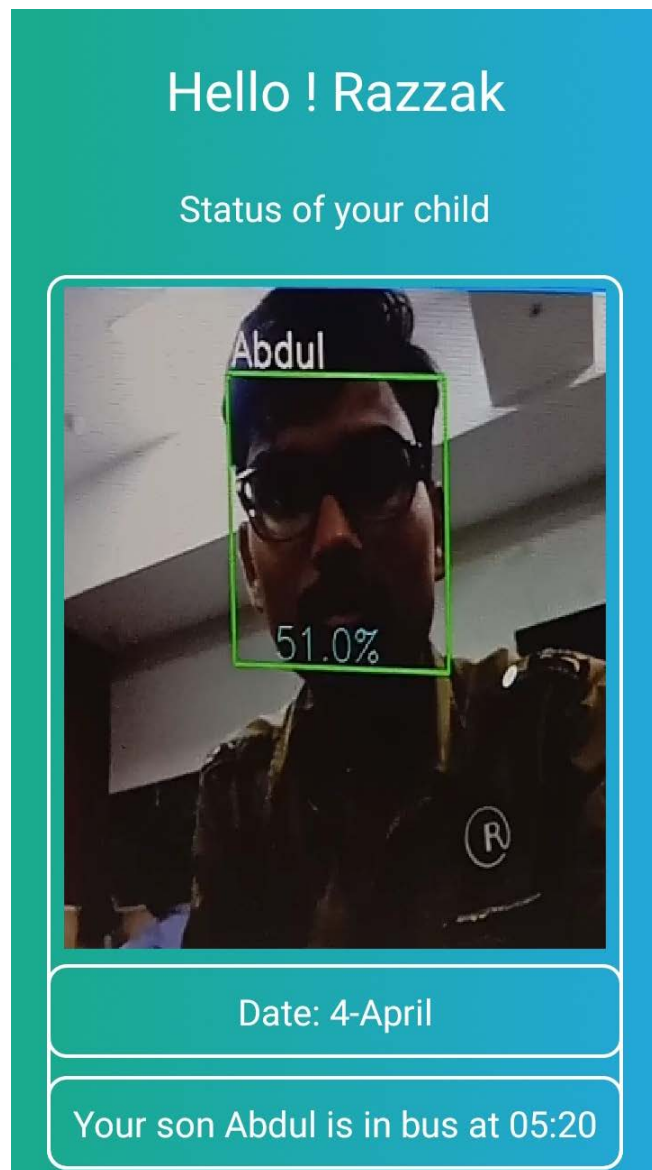


**Step 5: Send photo, message with date time on
parent app Parent Login**



The Parent Login screen features a blue gradient background. At the top center is a white bus icon. Below it, the word "Login" is displayed in a large, bold, white font. Underneath "Login" are two white input fields: the first is labeled "PHONE NUMBER" and the second is labeled "PASSWORD". Below these fields is a white rounded rectangular button with the text "Login Now". At the bottom of the screen, the text "FORGOT PASSWORD?" is displayed in a smaller white font.

Parent Message



The Parent Message screen has a blue gradient background. At the top, it says "Hello ! Razzak" in a large white font, followed by "Status of your child" in a smaller white font. The main content is a video frame showing a man with glasses and a mustache. A green bounding box is drawn around his face, with the name "Abdul" written above it and "51.0%" written below it. Below the video frame are two white rounded rectangular buttons. The first button contains the text "Date: 4-April". The second button contains the text "Your son Abdul is in bus at 05:20".

Feasibility

- The product goes in market, various schools will implement this and revenue will be generated.
- The same system with little modification can be used for smart door locks for security and by selling to smart home automation system making companies.
- The component manufacturing company advertisements and promotion will be done through product, the components cost will get reduced by having a fair deal with them.
- This product has huge potential market and customers and need of this product is high, therefore developed in this time will give a comparatively more profit margin and feasible.

Applications of the Project

- This product aims at solving the problem of child safety during travelling which gives us an edge.
- The product will be proposed to schools, parents and school bus operating companies.
- Also this product will be proposed to Government as safety of school buses is one of the great concerns of road and transport authority of India.

References

<https://ieeexplore.ieee.org/document/8009092/>
<https://github.com/nhorvath/Pyrebase4>
<https://github.com/olucurious/PyFCM>
<https://developer.android.com/docs>