

DRIVER DROWSINESS DETECTION SYSTEM

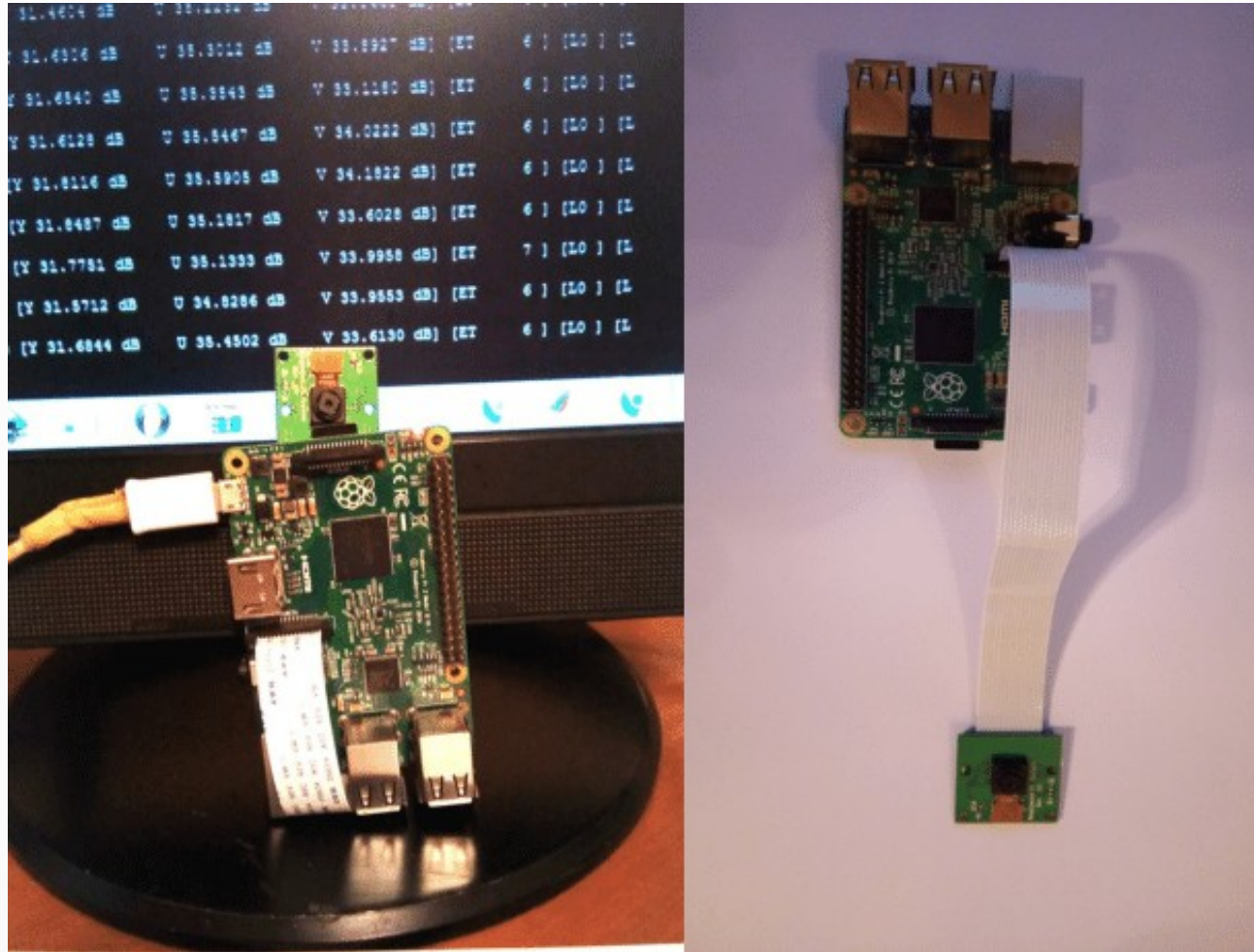
Shubhankar Gaikwad 31265

Shrut Shah 31264

Shruti Rawate 31279

Rasika Sonawane 31267

Yawn and Drowsiness Detection using OpenCV and Raspberry Pi

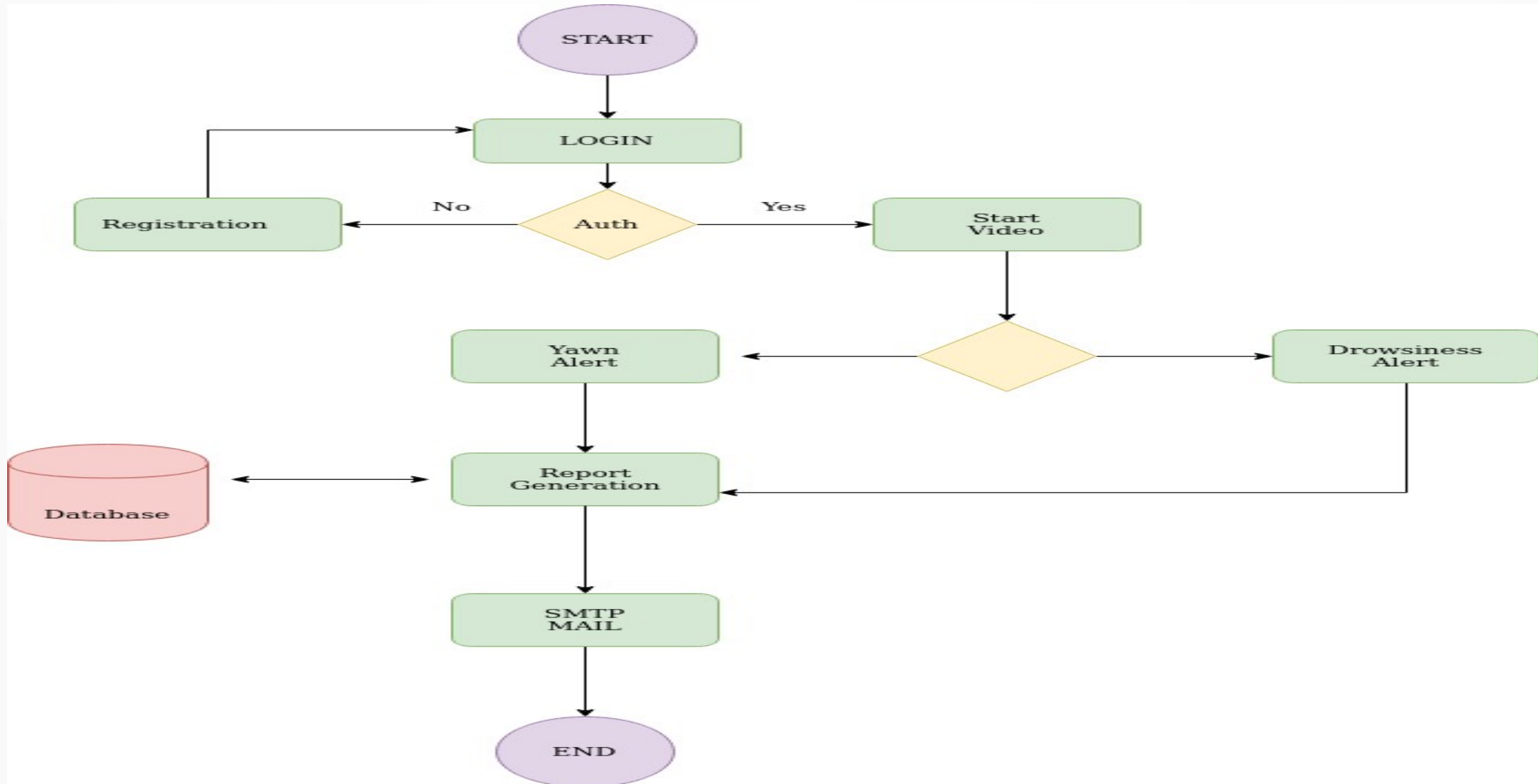


IoT Design Methodology Steps

Step 1: Purpose and Requirement Specification

- To send alerts to drivers for drowsiness and yawn.
- Automatic behavior detection using video processing.
- Send alerts and detailed reports.
- Local data storage and analysis.
- Local python application with authentication feature.

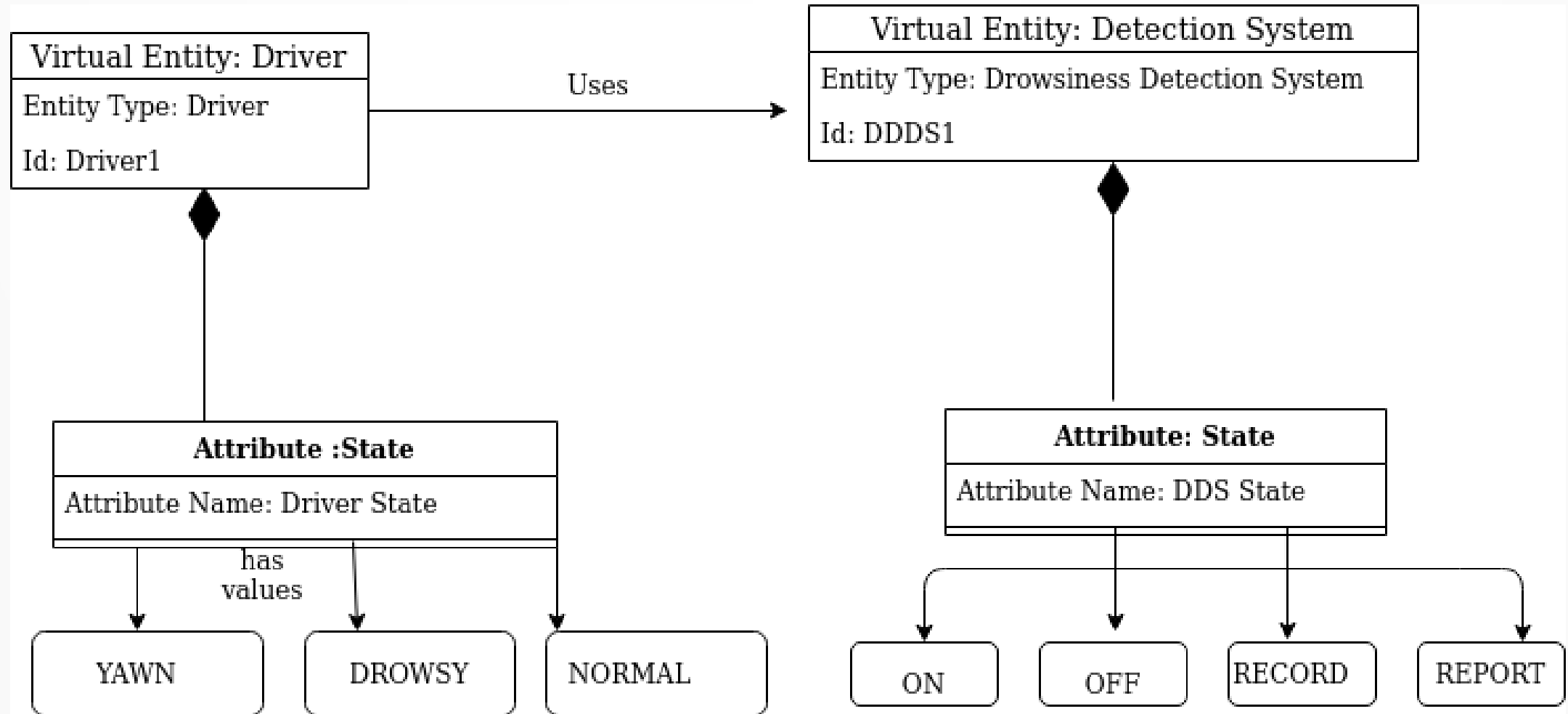
2. Process Specification



3. Domain Model Specification

- Physical entity- Driver, Car, Detection System
- Virtual entity- Capture of real time video.
- Device- Raspberry Pi, Camera module, phone/PC.
- Resource- Python libraries, OpenCV .
- Service- Python app for interaction, SMTP mailing service, local information storage.

4. Information Model Specification



5. Service Specification

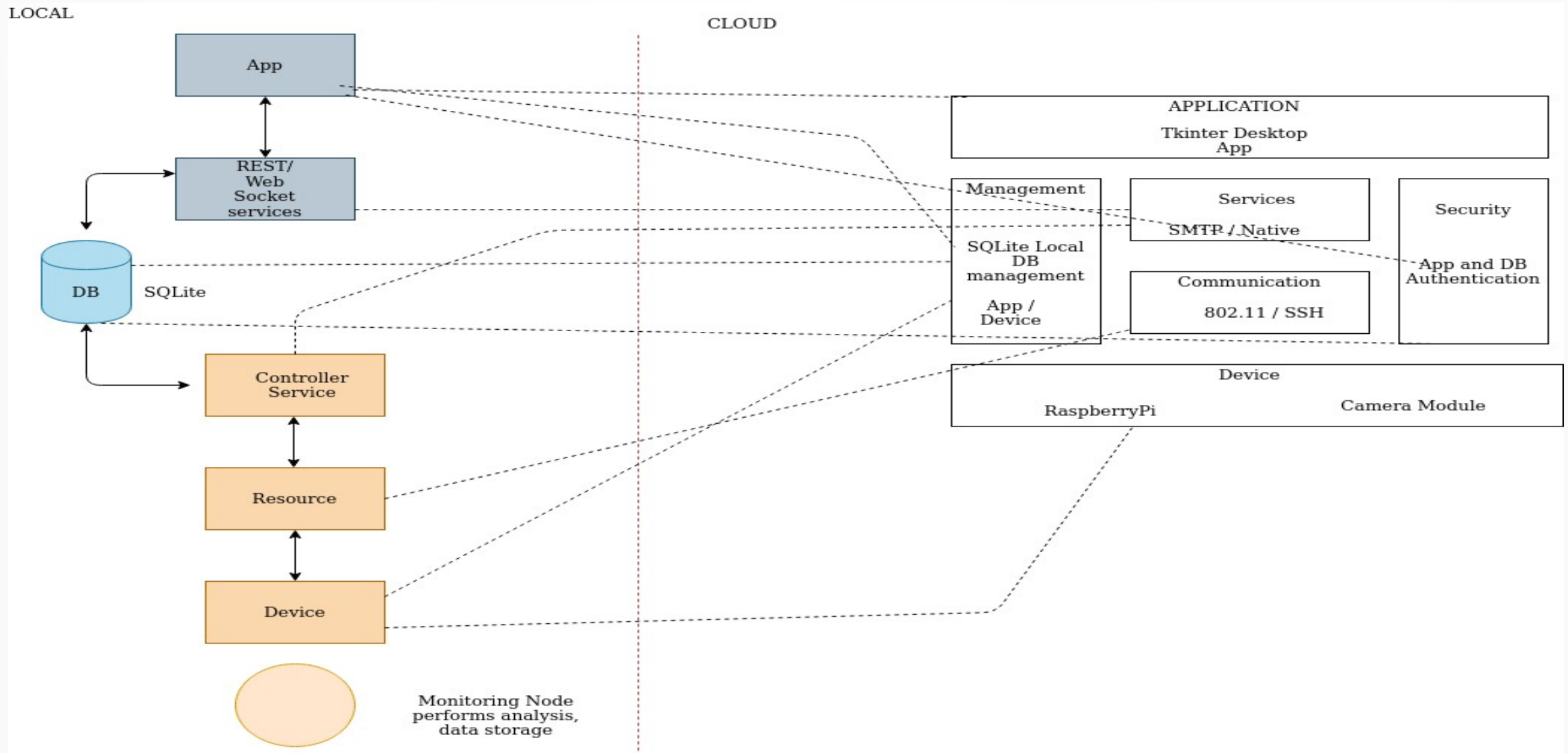
- The camera module is used to record real time video of driver and analyse for drowsiness.
- Alert if eyes are closed or yawns.
- Mail service based on user input of date.

6.IoT Level Specification

IoT Level 1 deployment.

- Local storage and analysis of data- SQLite
- Local application for control- tkinter python app.
- Single device node and controller.
- Remote access to RaspberryPi using phone/PC over WiFi

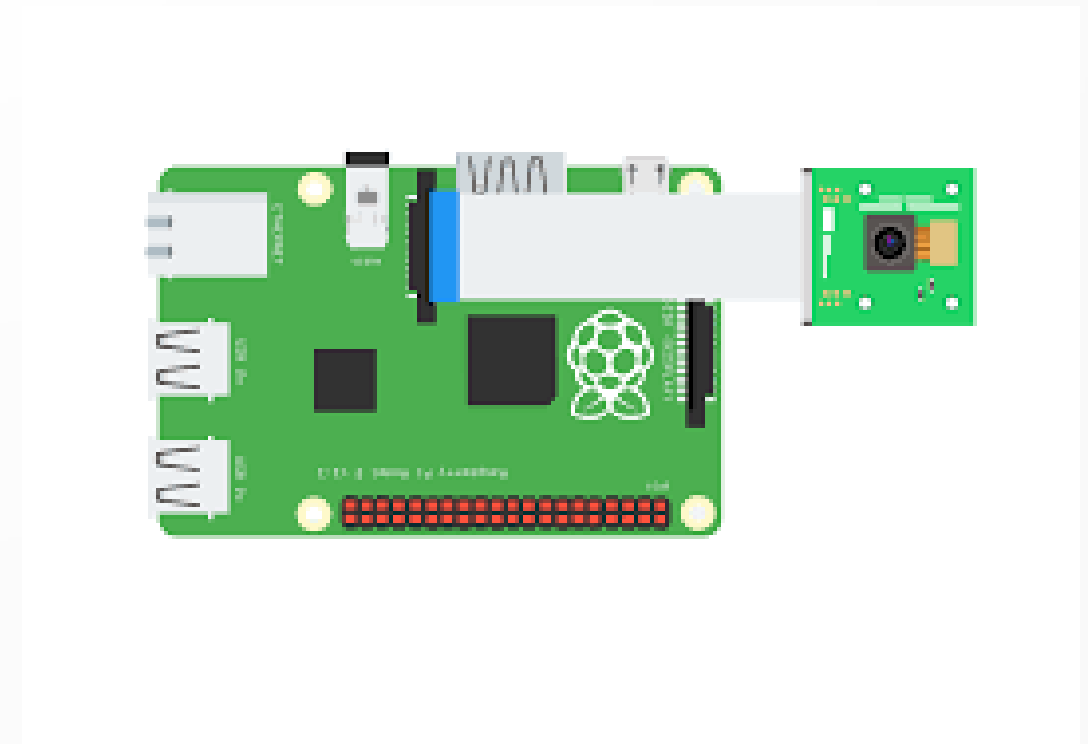
7. Functional View Specification



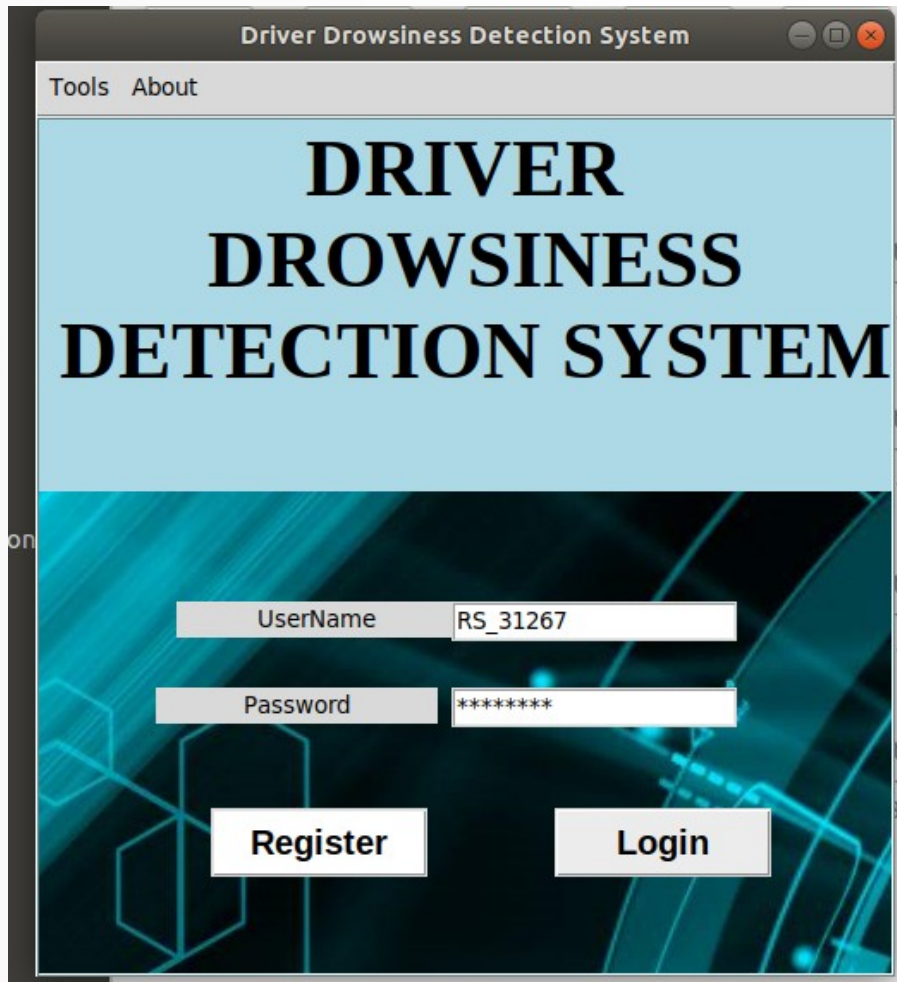
8. Operational View Specification

- App deployment using Python tkinter.
- Database - SQLite local storage.
- SMTP mailing service.
- User authorization and registration.
- 802.11 WiFi and SSH to control device remotely from phone or PC.

9. Device and Component Integration



10. Application Development



The screenshot shows the login interface of the Driver Drowsiness Detection System. The window title is "Driver Drowsiness Detection System". The menu bar contains "Tools" and "About". The main heading is "DRIVER DROWSINESS DETECTION SYSTEM". Below the heading, there are two input fields: "UserName" with the value "RS_31267" and "Password" with the value "*****". At the bottom, there are two buttons: "Register" and "Login".

Driver Drowsiness Detection System

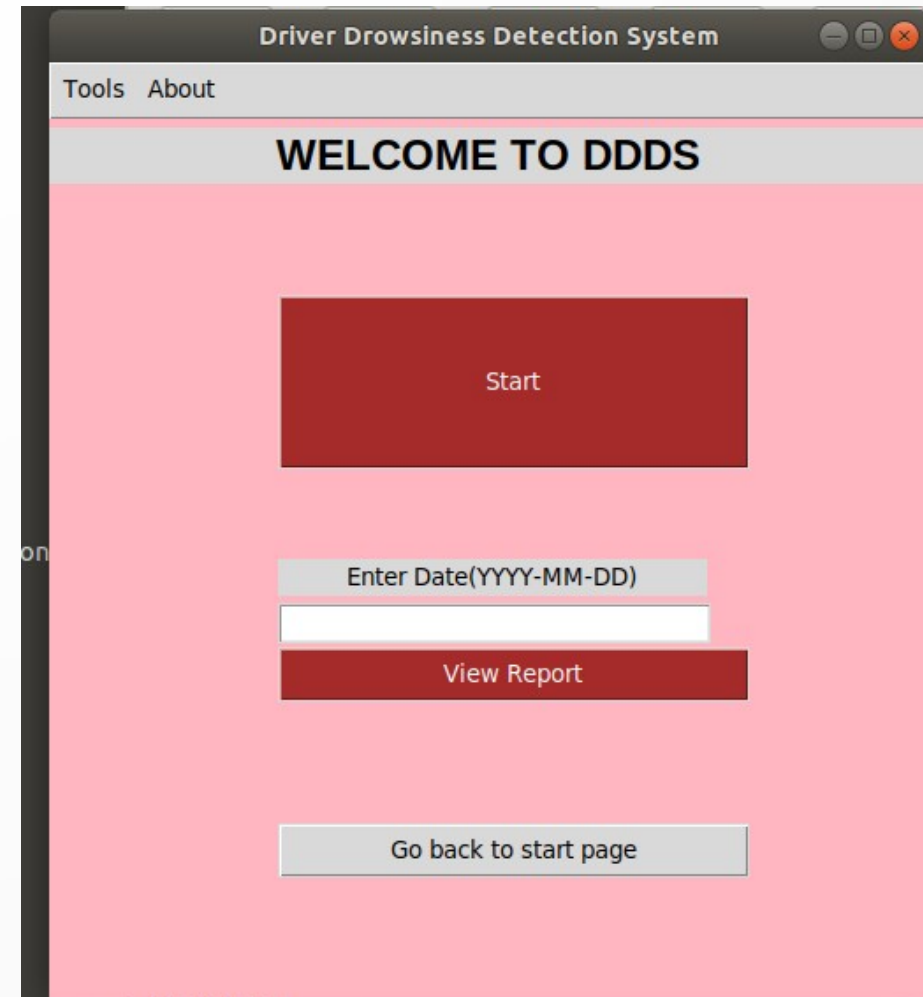
Tools About

DRIVER DROWSINESS DETECTION SYSTEM

UserName RS_31267

Password *****

Register Login



The screenshot shows the welcome interface of the Driver Drowsiness Detection System. The window title is "Driver Drowsiness Detection System". The menu bar contains "Tools" and "About". The main heading is "WELCOME TO DDDS". Below the heading, there is a large red button labeled "Start". Below the "Start" button, there is a text input field labeled "Enter Date(YYYY-MM-DD)". Below the date input field, there is a red button labeled "View Report". At the bottom, there is a light gray button labeled "Go back to start page".

Driver Drowsiness Detection System

Tools About

WELCOME TO DDDS

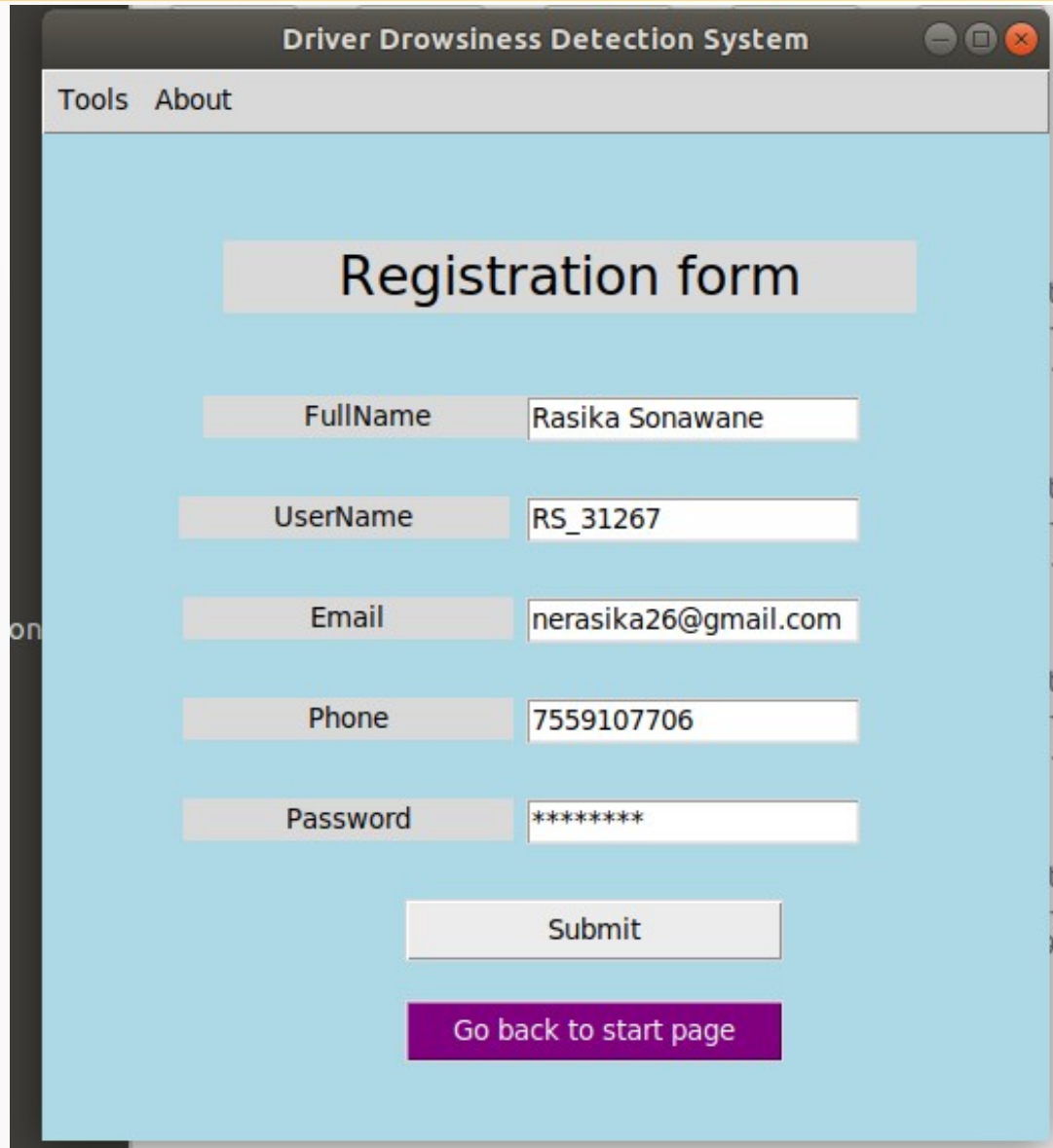
Start

Enter Date(YYYY-MM-DD)

View Report

Go back to start page

Working



The screenshot shows a web application window titled "Driver Drowsiness Detection System". It has a menu bar with "Tools" and "About". The main content area is light blue and contains a "Registration form" section. The form includes five input fields: "FullName" (filled with "Rasika Sonawane"), "UserName" (filled with "RS_31267"), "Email" (filled with "nerasika26@gmail.com"), "Phone" (filled with "7559107706"), and "Password" (filled with "*****"). Below the fields are two buttons: a light blue "Submit" button and a purple "Go back to start page" button.

Driver Drowsiness Detection System

Tools About

Registration form

FullName Rasika Sonawane

UserName RS_31267

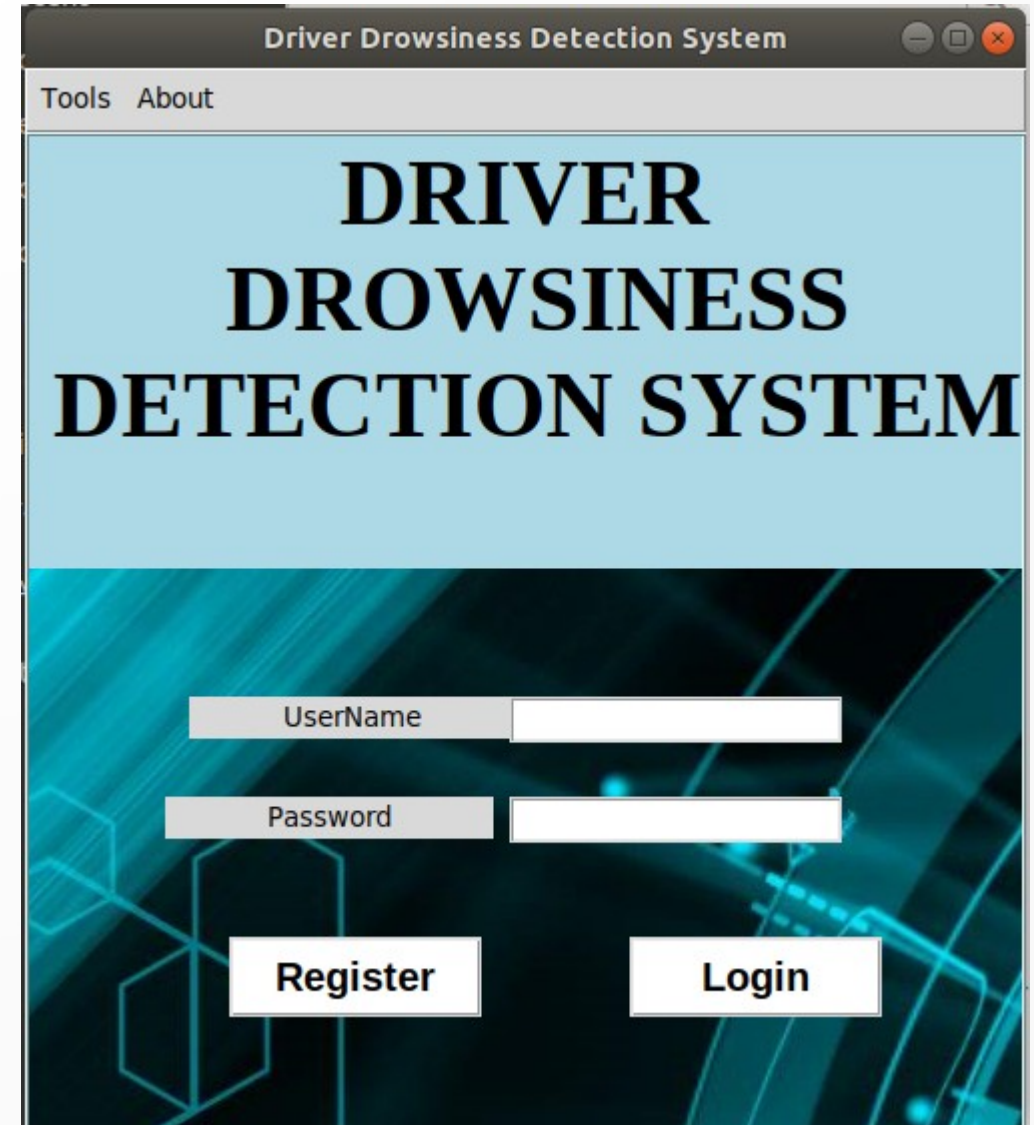
Email nerasika26@gmail.com

Phone 7559107706

Password *****

Submit

Go back to start page



The screenshot shows a web application window titled "Driver Drowsiness Detection System". It has a menu bar with "Tools" and "About". The main content area is light blue and contains the text "DRIVER DROWSINESS DETECTION SYSTEM" in large, bold, black letters. Below this is a dark blue background with a glowing blue geometric pattern. In the center, there are two input fields: "UserName" and "Password". Below these fields are two buttons: a white "Register" button and a white "Login" button.

Driver Drowsiness Detection System

Tools About

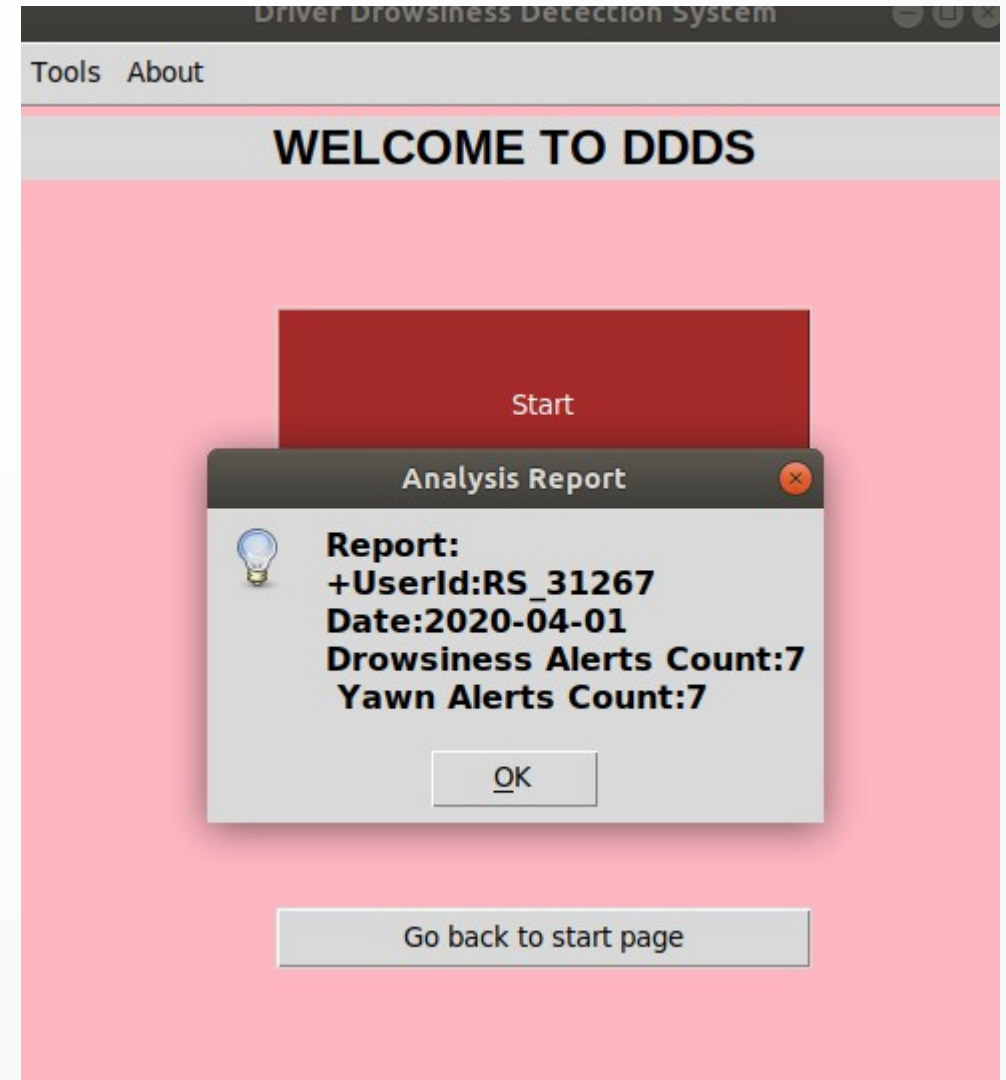
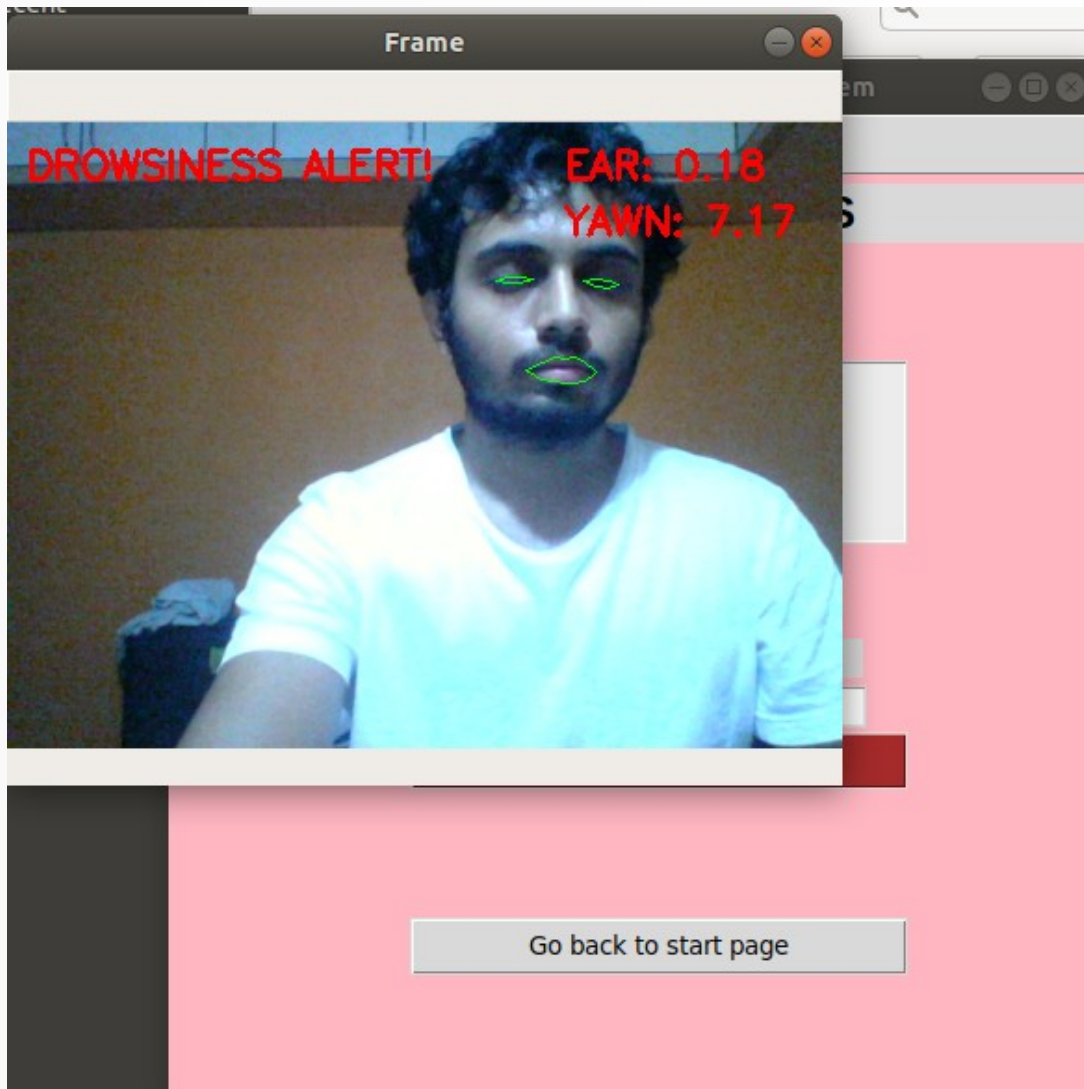
DRIVER
DROWSINESS
DETECTION SYSTEM

UserName

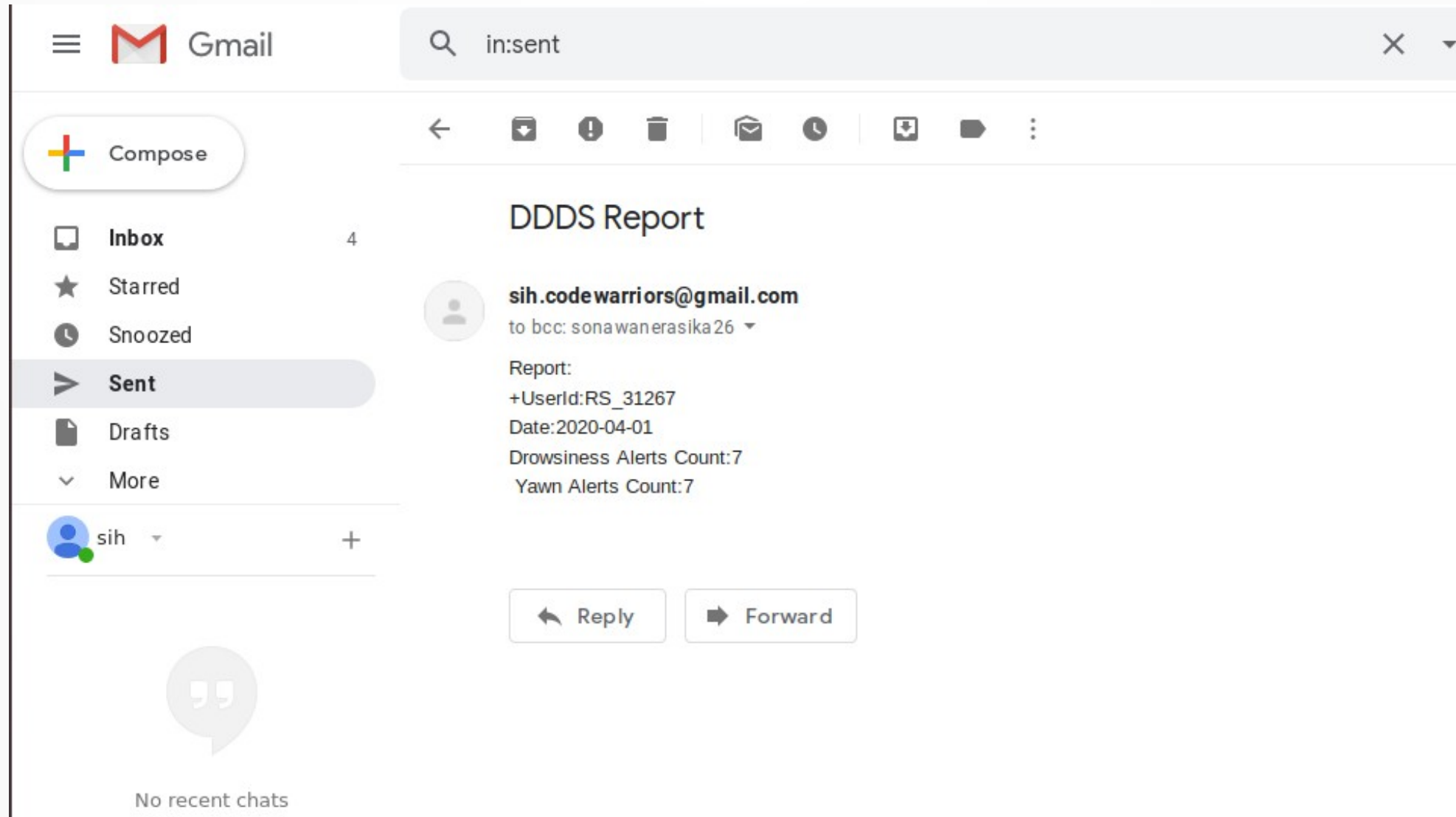
Password

Register Login

Alert and report generation



Mail sent



SQLite Database

New Database Open Database Write Changes Revert Changes

Database Structure Browse Data Edit Pragmas Execute SQL

Table: Analysis_Data New Record Delete Record

	UserId	AlertType	DateTime
	Filter	Filter	Filter
32	RS_31267	Drowsiness ...	2020-04-01 ...
33	RS_31267	Drowsiness ...	2020-04-01 ...
34	RS_31267	Drowsiness ...	2020-04-01 ...
35	RS_31267	Yawn Alert	2020-04-01 ...
36	RS_31267	Yawn Alert	2020-04-01 ...
37	RS_31267	Yawn Alert	2020-04-01 ...
38	RS_31267	Yawn Alert	2020-04-01 ...
39	RS_31267	Drowsiness ...	2020-04-01 ...
40	RS_31267	Drowsiness ...	2020-04-01 ...
41	RS_31267	Drowsiness ...	2020-04-01 ...
42	RS_31267	Drowsiness ...	2020-04-01 ...
43	SS_31264	Yawn Alert	2020-04-01 ...
44	SS_31264	Yawn Alert	2020-04-01 ...
45	SS_31264	Yawn Alert	2020-04-01 ...

Edit Database Cell

Mode: Text Import Export Set

Type of data currently in cell: NULL
0 byte(s)

Remote

Identity

Name	Commit	Last modified	Size
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THANK YOU!!