International Journal of Advances in Engineering and Management (IJAEM)
Volume 4, Issue 7 July 2022, pp: 920-924 www.ijaem.net ISSN: 2395-5252

Effective vehicle number plate recognition using Open CV PROCESS

Shreepad Bilkar, Dr. Mohan Aradhya
Department of MCA, RV College of Engineering, Karnataka, India
Professor, RV College of Engineering, Karnataka,

Submitted: 10-07-2022 Revised: 17-07-2022 Accepted: 21-07-2022

ABSTRACT: In today's world, day-to-day activities are common in both developed and developing countries. Huge amounts of data-driven innovation are affecting all aspects of daily life, and it is driving demand for automobiles as data-driven technologies are implemented. Because an independence information service with no data makes no sense, there is a need to alter vehicle data between realities and data systems. This will be damaged by a person's operator, or any extra features operator, who may forecast vehicles by their number plates during a specific case and reflect it into applied data. As a result, various acknowledgment techniques are used, and number plate recognition systems are now useful for a variety of resource activity and security applications, such as stopping.As a consequence, it decreases the amount of labour that police officers have to do, and because the old method was image processing, it was difficult to anticipate the character, so we used the KNN Algorithm to get an accurate result.

I. INTRODUCTION

Transportation and patrol can use the technology that is easy to track based on the photos and scan the number plate cars since advanced number plate identification of vehicles may be huge. This application is used by traffic cops and a toll gate, as well as a checkpoint, to monitor people's violent behaviour and to capture pictures and create compliance. Advanced vehicle number plate recognition frequently fails to save the captured images. In this project, we use the KNN machine learning technique to identify licence plates. We can trace the number plate pictures using this approach and the OpenCV library package. The disadvantages of the existing approach are that we can predict the number plate but it does not clear, making it difficult to track down a specific person. The characters are tough to distinguish in the current method.The major goal of the research is to accurately recognise the number plate. To obtain reliable results, we use a Machine Learning method in this system. If someone uploads an image of a licence plate, the system will instantly recognise and display the user's information, allowing the police to bookcases and date of accidents online.

II. OPERATIONAL FEASIBILITY AND SOFTWARE REQUIREMENT SPECIFICATIONS

As the name implies, operational has nothing to do with the system's action, performance, or behavior. Some considerations will be made here, and they are outlined below.

1. What kinds of system changes will be implemented?
2. What level of professionalism is necessary, as well as new talent?
3. Do any of the current employees possess these skills?
4. Are they going to be trained if they don't have?

The system will be put to use once it has been created and completed. Anyone who want to utilize the system must have at least a basic understanding of how to do so. A basic degree of training should be provided to the user.

OS (Operating System) - Windows XP/7/10
Programming Language - Python 3x
Front End or Web Technologies - HTML5,CSS, BOOTSTRAP
Web Frame works - Django 2x
IDE (Integrated Development Environment) - PyCharm IDE Community Edition 2018.3.3
APIs - NumPy, Pandas, Sklearn, Matlib, Seaborn
Technology used - Machine Learning
Database - SQLite

International Journal of Advances in Engineering and Management (IJAEM)
Volume 4, Issue 7 July 2022, pp: 920-924 www.ijaem.net ISSN: 2395-5252

III. DATA FLOW DIAGRAM AND USE CASE DIAGRAM

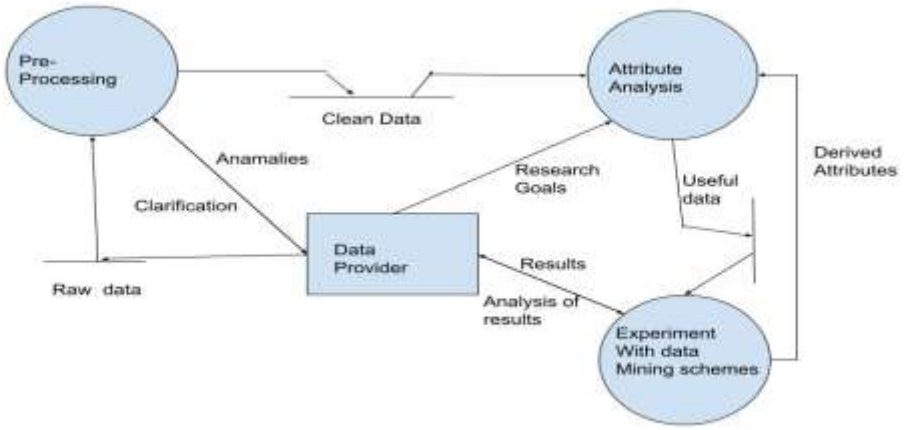

Figure 1: Data Flow Diagram

Data Flow Diagram is a graphical representation of a process or system of the data. It consists of various method like data process and sources of data and all the description to understand the data in easiest way. DFD is type of the modelling tools. DFD is used to identify the data relationship in different ways by using event diagrams, activity diagrams, transition diagrams and class diagrams

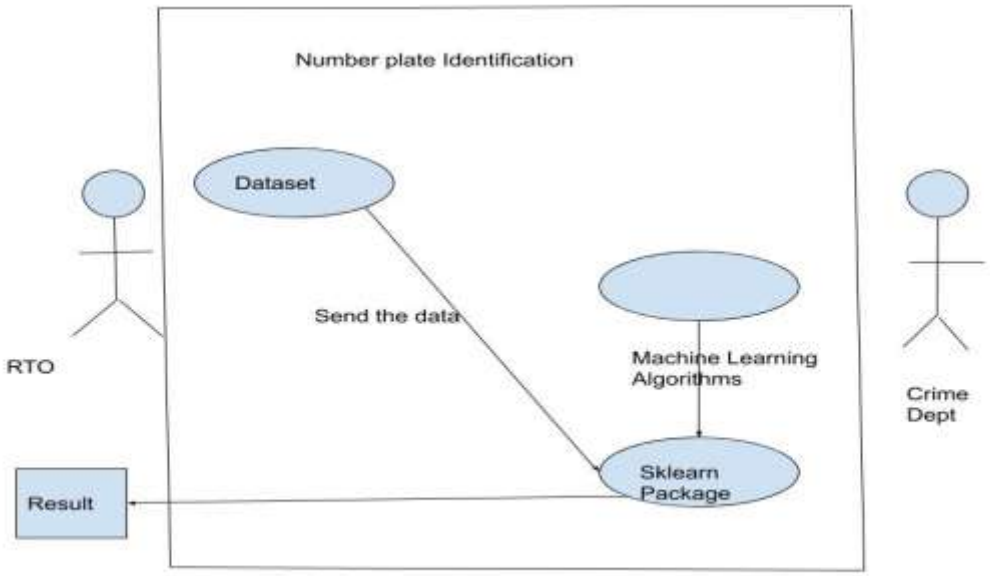

Figure 2: Use case diagram

International Journal of Advances in Engineering and Management (IJAEM)
Volume 4, Issue 7 July 2022, pp: 920-924 www.ijaem.net ISSN: 2395-5252

IV. SYSTEM DESIGN

MODULARIZATION DETAILS

USERS

For detecting number plate, we are going to use two modules

- RTO Module
- Crime Department Module

Modules Description

Step 1: Gathering data and preparing the dataset This will entail the gathering of licence plates.

Pre-processing is applied to the dataset to remove any superfluous data and extract relevant features from it, using information artefacts from multiple sources such as RTO and the Crime Department.

Step 2:

Vehicle Re-identification: Developing a probabilistic modelling and deep learning technique (RNN) This step will design a probabilistic modelling and deep learning strategy based on KNN that will work effectively on a large number plate. In addition, NKK can cope with a large number of information variables without deleting any of them.

Step 3: Dataset training and experimentation To make accurate predictions and produce Confusion matrix, the name plate identification model will be trained on a vehicle dataset.

Step 4: Implementation and evaluation in a real-world scenario The trained and tested prediction model will be used in a real-life scenario created by human specialists and will be used to develop the process further, following the architecture outlined above

V. EXPERIMENT AND RESULTS

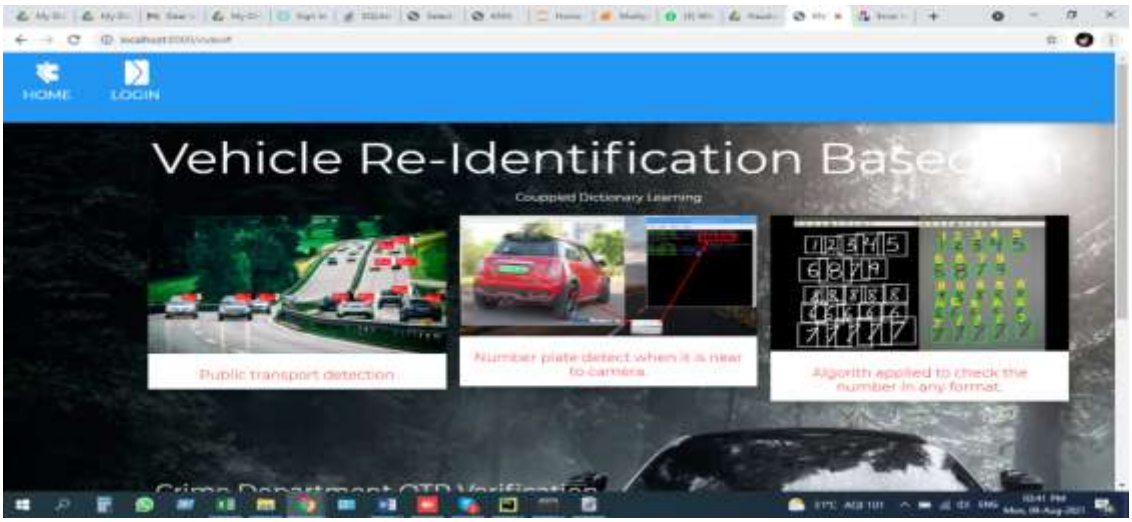

Figure 3: UI Screen

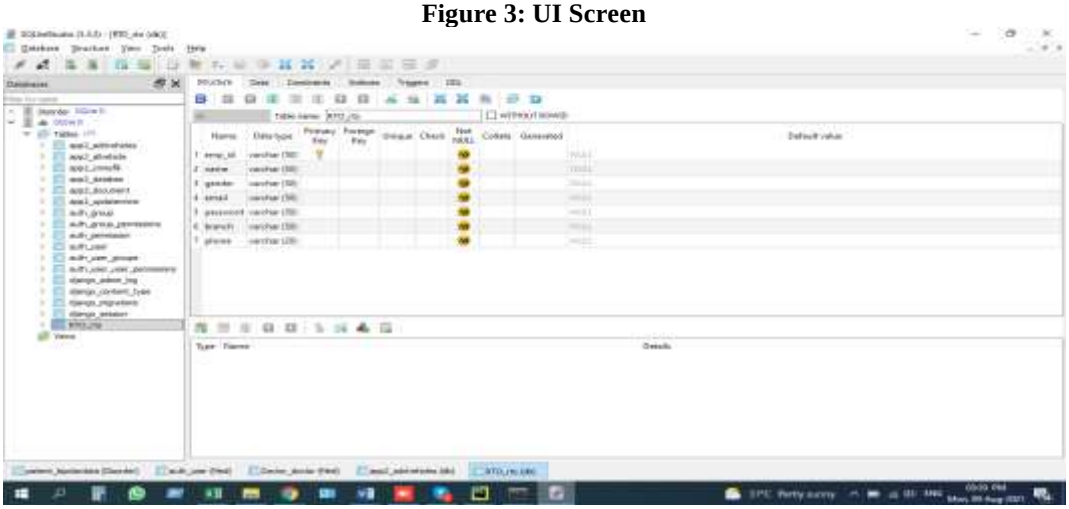

Figure 4: Database design RTO

International Journal of Advances in Engineering and Management (IJAEM)
Volume 4, Issue 7 July 2022, pp: 920-924 www.ijaem.net ISSN: 2395-5252

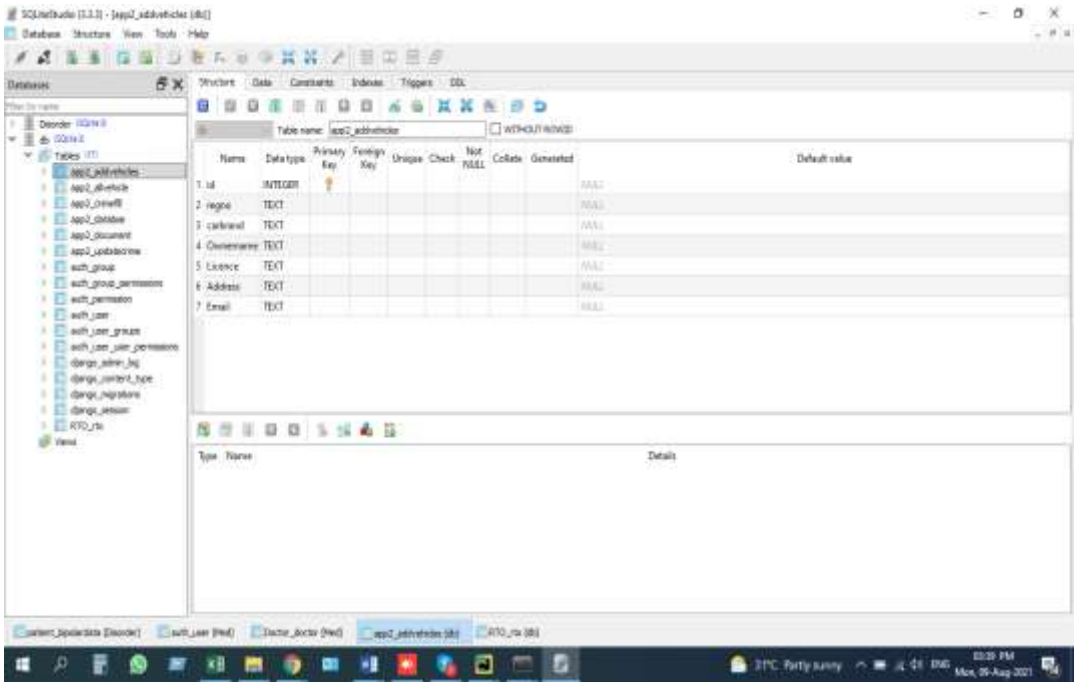

Figure 5: Database design of ADD Vehicle

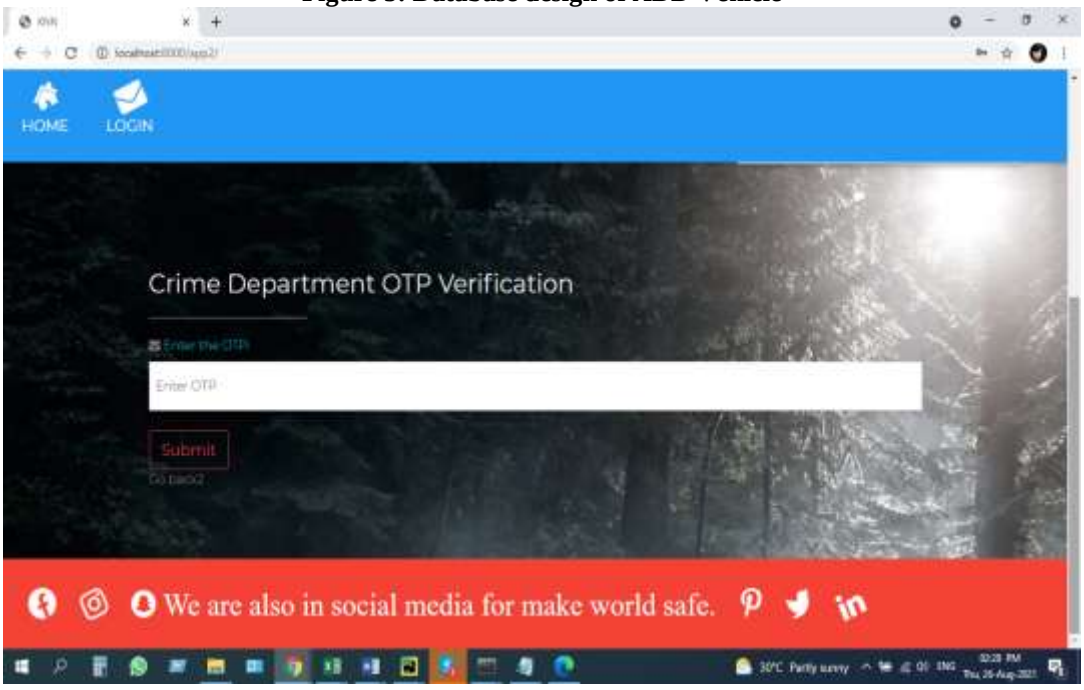

Figure 6: OTP Login screen

International Journal of Advances in Engineering and Management (IJAEM)
Volume 4, Issue 7 July 2022, pp: 920-924 www.ijaem.net ISSN: 2395-5252

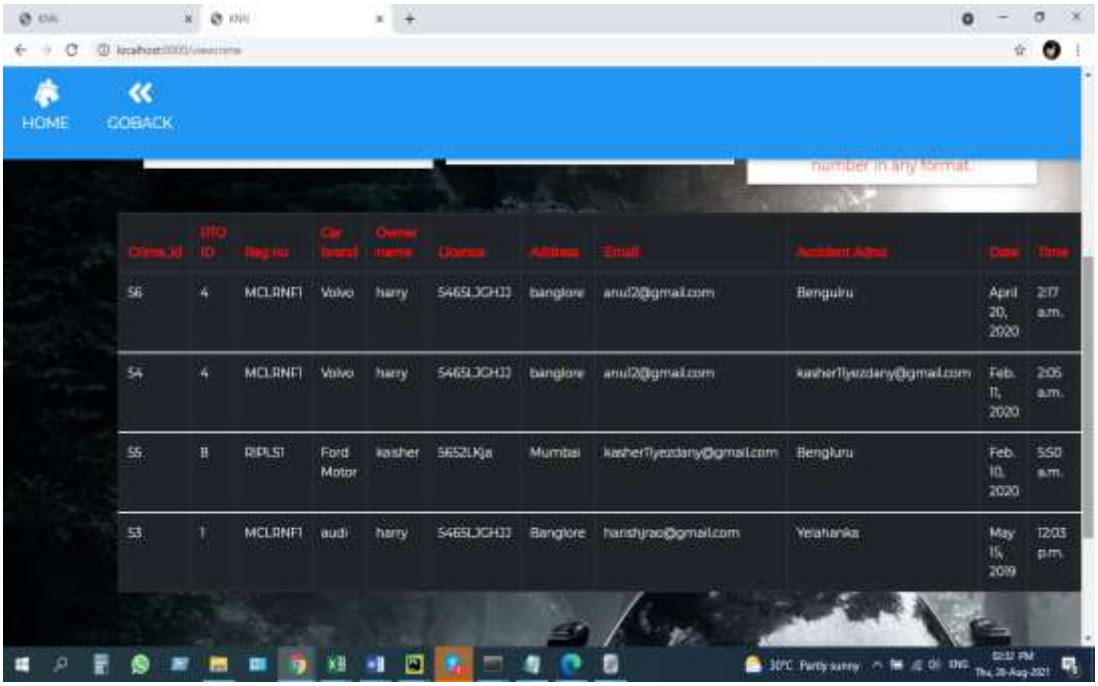

Figure 7: View UPDATES

VI. CONCLUSION

The number plate identity was predicted using a machine learning technique in this study. We'll be able to anticipate both numbers and characters using the MLX method. We could only predict numbers in the previous system, but now we can predict both utilising machine learning ideas. We have the datasets in comma separated value format with all of the photos. In the event that the capturing photographs are blurry and unclear, we can use this method to forecast the number plate outcome. For processing photos, we employ machine learning and open-cv library packages, and we can eventually detect the number plate. This project is primarily designed to assist transportation and police personnel in identifying and tracking criminals.

REFERENCES

[1]. XiaojunZhai, FaycalBensaali, “Standard Definition ANPR System on FPGA and an Approach to Extend it to HD” in 2013 IEEE GCC Conference and exhibition, November 17-20, Doha, Qatar. pp.214

[2]. H. ErdincKocer and K. KursatCevik, "Artificial neural networks based vehicle license plate recognition," Procedia Computer Science, vol. 3, pp. 1033-1037, 2011

[3]. A Roy and D.P Ghoshal, "Number Plate Recognition for use in different countries using an improved segmentation," in 2nd National Conference on Emerging Trends and Applications in Computer Science(NCETACS), 2011, pp. 1-5

[4]. FikriyeÖztürk and FigensÖzen, "A New License Plate Recognition System Based on Probabilistic NeuralNetworks," Procedia Technology, vol. 1, pp. 124-128,2012

[5]. Anton SatriaPrabuwono and Ariff Idris, "A Study of Car Park Control System Using Optical Character Recognition," in International Conference on Computer and Electrical Engineering, 2008, pp. 866-870

[6]. Ch. Jaya Lakshmi, Dr. A. Jhansi Rani, Dr. K. Sri Ramakrishna, and M. Kanti Kiran, "A Novel Approach for Indian License Recognition System," International Journal of Advanced Engineering Sciences and Technologies, vol. 6, no. 1, pp. 10- 14, 201.