

VEHICLE NUMBER PLATE RECOGNITION SYSTEM USING RASPBERRY-PI

¹B.ARCHANA, ²B.SURESH RAM, ³G.KARTHIK REDDY, ⁴B.SAI DHEERAJ, ⁵P.ADITHYA

¹ Asst. Prof, Dept. of CSE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

² Assoc. Prof, Dept. of ECE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

³ Asst. Prof, Dept. of ECE, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

⁴⁻⁵ B-TECH, Dept. of AIML, CMR COLLEGE OF ENGINEERING & TECHNOLOGY

Abstract

The vehicle-related security and safety issues are increasingly becoming a matter of concern. Generally, in the parking lots heavy labour work is needed. Now-a-days, parking places depended on labour. They need to maintain data of all the vehicles by physically entering the information. It includes high prices. Even, our precious time is wasted due to the inconvenient and ineffectiveness at parking places and more consumption of fuel while idling or driving around the parking places. Hence, some type of automated system is needed for the vehicle number plate recognition.

1. INTRODUCTION

Vehicle Number Plate Recognition system is an application of computer vision and image processing technology that takes photograph of vehicles as input image and by extracting their number plate from whole vehicle image, it displays the number plate information into text without direct human intervention. The automatic vehicle number plate detection is very important in areas like toll collection, parking management, traffic policing and crime investigation. There are numerous recognition systems available which are designed using different methods but still some features are to be explored like vehicle speed, different environment

conditions can affect the system recognition rate. The proposed system has to overcome the drawbacks of the existing system.

2. RELATED WORK

Each and every solution will definitely have at least one or two drawbacks. The drawbacks in the above discussed existing solutions are defined on the basis of cost, time consumption etc.

common challenge they face is **the non-uniformity of license plate number models for different cities and countries**. Their length may also vary. That's why the software must be customized to the place it's being used in. By using image processing, the vehicle number plate

recognition system is used to recognize the license plate number for efficient management of vehicle parking. It is an independent real-time system, reduces number of people involvement in parking areas. The main aim of this system is to book a slot to park a specific car. This system extract and recognize license plate numbers from the vehicles, then that image is being processed. This system is composed of vehicles license plate number extraction. A proper pre-processing is done before extracting the license plate and it also have all details of the car and generates the entry time and exit time of the vehicle.

3. IMPLEMENTATION

The key objective of our project is to design a less cost vehicle number plate recognition using raspberry pi, which is efficient in capturing number plate of the particular vehicle and to register a parking slot automatically.

This would definitely help without involvement of human intervention.

Requirement

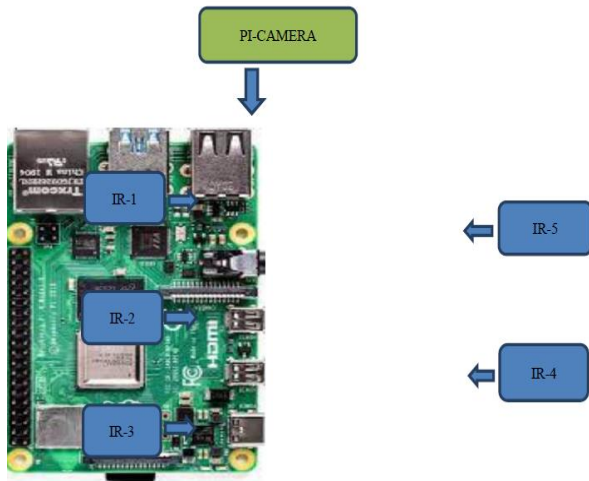
- Raspberry pi
- Pi camera
- IR sensors
- Coolant fans
- Jumperwires
- LEDlight
- USB adapt

While entering into the parking complex, stop near the raspberry pi-camera. It takes the image of your vehicle and extracts the number plate image, then it saves information of your vehicle. Then, the system automatically registers an available slot for your vehicle. Then you can park your vehicle in the slot.

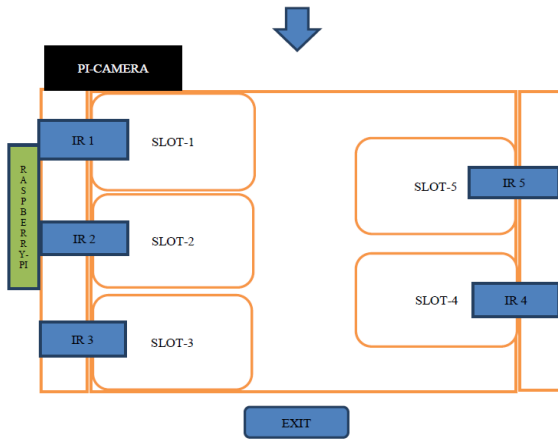
4. EXPERIMENT RESULT

The vehicle number plate recognition system is widely used. Because, it gives so security to your vehicles as well as the labor force is reduced in parking system. So, it has much future scope.

Result: Hence, after doing this project, we are able to implement our idea of recognizing vehicle with specific number plate with the help of Raspberry Pi image processing techniques for various private parking, staff parking and VIP areas. We concluded that with this project one could create an organized parking only for registered vehicle and collect the information of vehicle along with their timing details.



Block diagram



Conceptual design

5. CONCLUSION:

By using image processing, the vehicle number plate recognition system is used to recognize the license plate number for efficient management of vehicle parking. It is an independent real-time system, reduces number of people involvement in parking areas. **Future Scope** The vehicle number plate recognition system is widely used. Because, it gives so security to your vehicles as well as the labor force is

reduced in parking system. So, it has much future scope.

6. REFERENCES:

[1]https://play.google.com/store/apps/details?id=ru.sash0k.bluetooth_terminal&hl=en
 [2]<https://play.google.com/store/apps/details?id=braulio.calle.bluetoothRCcontroller&hl=en>
 [3] United Nations Environmental Programme (2013), “Guidelines for National Waste Management Strategies Moving from Challenges to Opportunities”
 [4] N.M. Yusof, A.Z. Jidin, M.I. Rahim, “Smart Garbage Monitoring System for Waste Management”, MATEC Web of Conferences Engineering Technology International Conference, Vol. 97, EDP Sciences (2017), p.01098
 [5] M.K. Ghose, A.K. Dikshit, S.K. Sharma, “A GIS based transportation model for solid waste disposal – A case study on Asansol Municipality”, Journal of Waste Management
 [6] L.A. Guerrero, G. Maas, W. Hogland: Solid waste management challenges for cities in developing countries, Journal of Waste Management
 [7] Nádvorník, PavelSmutný (2014) “Remote Control Robot Using Android Mobile Device” 2014 15th International Carpathian Control Conference (ICCC) 374, 978-1-4799-3528-4/14 ©2014 IEEE