

VEHICLE NUMBER PLATE RECOGNITION SYSTEM USING RASPBERRY-PI

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Abstract

More and more people are starting to worry about security and safety concerns with vehicles. Heavy lifting is usually required in parking lots. These days, people had to work for parking spots. Physically inputting data is necessary to keep track of all the cars. Expensive costs are a part of it. Parking is so inconvenient and inefficient that it wastes our valuable time, and we spend even more gasoline idling or circling the lots in search of a spot. Therefore, a system that can automatically recognise vehicle licence plates is necessary.

INTRODUCTION

The VNPR system is a computer vision and image processing application that uses vehicle photographs as input images, then automatically displays the number plate information as text by extracting the plate from the entire image. Areas such as toll collecting, parking management, traffic policing, and criminal investigation greatly benefit from automated vehicle number plate identification. While there are a plethora of identification systems on the market, each with its own unique approach, there are still many undiscovered characteristics, such as vehicle speed and environmental factors.

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

1. 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.

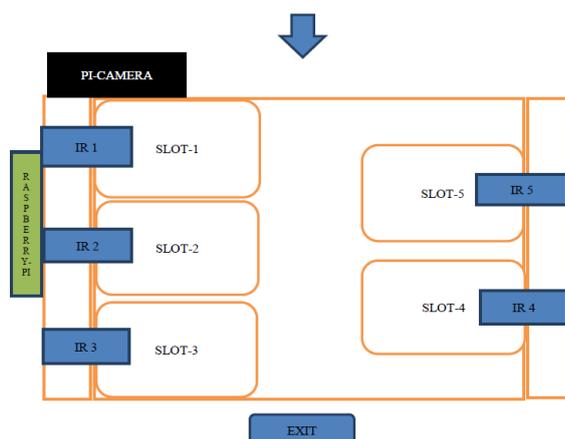
2. IMPLEMENTATION

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

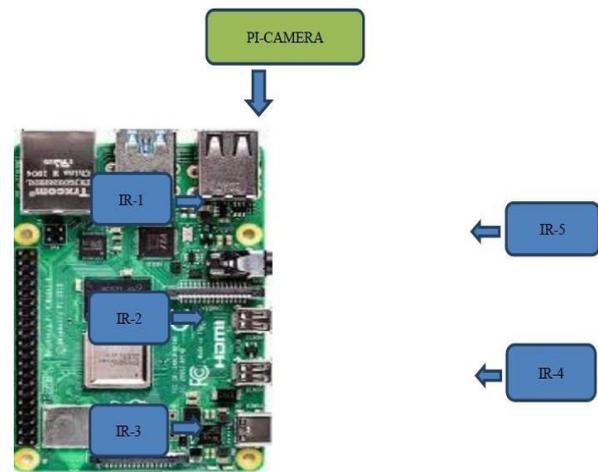


- Coolant fans
- Jumperwires
- LEDlight
- USB adapt

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.

3. EXPERIMENT RESULT

Numerous vehicles make advantage of the licence plate recognition system. Because it reduces the need for human labour in the parking system and provides a high level of protection for your automobiles. Therefore, there is a lot of room for growth in the future. Conclusion: After completing this project, we can put our concept into action for several types of parking lots, including private, staff, and VIP sections, by using image processing methods on Raspberry Pis to identify vehicles based on their licence plates. We determined that this project might be used to organise a parking lot for registered vehicles only, track their location and arrival and departure times, and gather other relevant data.



Block diagram

Conceptual design

4. CONCLUSION:

Using image processing, a car licence plate recognition system may scan licence plates for easier parking management. There will be less need for human involvement in parking lots thanks to this autonomous, real-time technology. Future Expectations The number plate recognition technology is used by a large number of cars. For the simple reason that it safeguards your vehicles and employees to a great degree.

less space available in the parking garage.

So, there's a lot of space for development down the road.

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