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SMART DEVICE FOR IDENTIFICATION OF EVEN – ODD NUMBER PLATE

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ABSTRACT

The prominent snag or drawback into one of the most important necessity of human race that is "TRANSPORTATION" is reckless driving and lack of responsible nature towards traffic laws. In India, Delhi government came up with the great Idea for reducing traffic that is "Even Odd Rule" And the Idea works well to reduce traffic and pollution as well. Applying such idea for the huge population itself is not easy. For the implementation of such idea require same amount of traffic force as well. So in order to reduce the intervention of huge traffic force/police we came up with an idea, to implement a conjugation of Embedded System and MATLAB that is "SMART DEVICE FOR IDENTIFICATION OF EVEN – ODD NUMBER PLATE" ".As perquisite we required a huge data base of the vehicle through which the comparison shall be made. In hierarchy we require image processing and a camera interface which ultimately detect the plate of a moving vehicle for odd or even number. Programming of module shall be done in such a way that it can evaluate odd or even and shall compare it with the data base which already exist into several data directories available to the traffic authority. Once the sampled data is matched with the required value the action perform will depend on the check if true no penal action will be performed else an email will be generated consisting of the information of the owner of the vehicle along with auto-generated CHALLAN and send to the owner of the vehicle as well as Traffic authority. Not only email but a SMS will be sent to traffic authority through GSM module interface with the system. To add to the future modification the location of vehicle can be tracked by the traffic authority by use of IOT.

Keywords- *IOT, GSM, MATLAB, ARDUINO*.

INTRODUCTION

In INDIA, Delhi marked as the top-most polluted city. In December–January 2015, in Delhi, an average air PM2.5 level of 226 was noted by US embassy monitors in Delhi and it is a critical situation for Delhi. People living in Delhi breathe in an unhealthy environment. For controlling these situations Delhi government took some steps to control the pollution level in Delhi from which one is EVEN/ODD number system which is applied in Delhi for trial bases to check its feasibility level and which is quite even success-full will be planned to apply further as well. But in this trial period Delhi government even face some difficulties form which one of is "who will identify everywhere in Delhi even-odd number vehicle " because traffic police will not be present everywhere at same time and not even notice the number plate of high speed vehicle. This will lead me to think about a device which automatically identifies the vehicle number. Plate EVEN/ODD and automate the work of sending "CHALLAN" to vehicle owner if he break

FOR IDENTIFICATION OF EVEN - ODD NUMBER PLATE"

Algorithms used for this Process are:

- Number plate Localization
- Number plate Filter and Orientation
- Normalization
- Character segmentation
- Optical character recognition (OCR)
- Syntactic /Geometrical analysis
- Finding Odd-Even Number Plate
- Sending Message to vehicles Number

Complexities of Number Plate Identification Variance:

Vehicles are giant mass objects with a range of shapes, styles and colors .Algorithms should be ready to verify what a part of the vehicle is really the captured to identify number plate.

REQUIREMENT

1. Stolen vehicles.
2. Compute parking price.
3. Granting access to UWC primacies.
4. Identify owner profaned traffic laws.
5. Speed limit on road

LITERATURE REVIEW

The license plate recognition involves Image acquisition, License plate extraction, Segmentation, and Recognition phases. Beside the use of Arabic language, Saudi Arabian license plates have several unique features that are taken care in the segmentation and recognition phases. The system is tested over a large number of car images and is proved to be 95 % accurate.[1]

In the image acquisition stage, some points have to be considered when choosing the ALPR system camera, such as the camera resolution and the shutter speed. In the license plate extraction stage, the license plate is extracted based on some features such as the color, the boundary, or the existence of the characters. In the license plate segmentation stage, the characters are extracted by projecting their color information, by labeling them, or by matching their positions with template. Finally, the characters are recognized in the character recognition stage by template matching. [2]

This paper describes an algorithm that allows the recognition of vehicles' number plates using hybrid Morphological techniques including hat transformations and morphological gradients and neural networks. The main advantage of the efficiency, our method has been tested over a large number of images captured at day time and achieved a satisfactory results. Finally it is proved to be 91.02% correct in the extraction of plate region and 88.46% correct in the segmentation of the characters.[3]

A simple but efficient license plate extraction method is presented in this paper. The proposed method is mainly designed for real-time Indian license plate.

CONCEPT AND THEORY OF   PROBLEM

A solution to all or any of the issues or needs listed higher than are by exploitation the amount plate recognition system. range plate recognition system may play a decent role or is useful on purloined cars by matching.
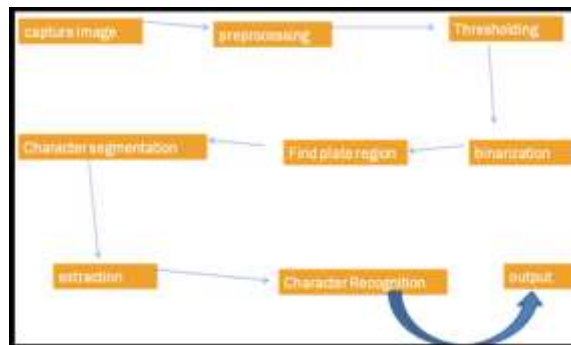
The number plate recognition requires modification plenty of things, were known. The necessities are analyzed and solutions to the issues are been checked and deployed to get the better results than the previous efforts.

DESIGN APPROACH

Vehicle car place (VCP) constitutes AN unambiguous symbol of a vehicle taking part in road traffic. AN economical automatic car place recognition method might become the core of absolutely processed road traffic observance systems, electronic fee assortment solutions, police investigation devices and safety management systems. License-Plate Recognition System consists of 3 main modules:
1.   License plate detection
2.   Character segmentation
3.   Optical Character Recognition (OCR)
This report presents the algorithms for localization of yellow coloured license plates mistreatment morphological operations, character segmentation mistreatment bar graph and intensity projections and Optical Character recognition

mistreatment example matching. what is more, AN object improvement technique has been mentioned that improves the performance of the whole system. Towards the tip we've additionally mentioned the varied alternative approaches enforced by North American country and that we have projected enhancements within the used formula which may more improve the potency and accuracy. road traffic observance systems, electronic fee assortment solutions, police investigation devices and safety management systems. it's necessary that the popularity accuracy of such a method is incredibly high. chase and registering .Modules of LPR

1.　　　License plate detection,
2.　　　character segmentation and
3.　　　Optical Character Recognition (OCR).
4.　　　License plate detection,
5.　　　Character Segmentation

Approach

The implementation of the program is developed on MATLAB IMAGE ACQUISITION & process tool cabinet for car place recognition; stand out management mistreatment MATLAB for information, email notification mistreatment MATLAB server consumer interface and UART management to send acknowledgement to hardware primarily based MATLAB interface programming.
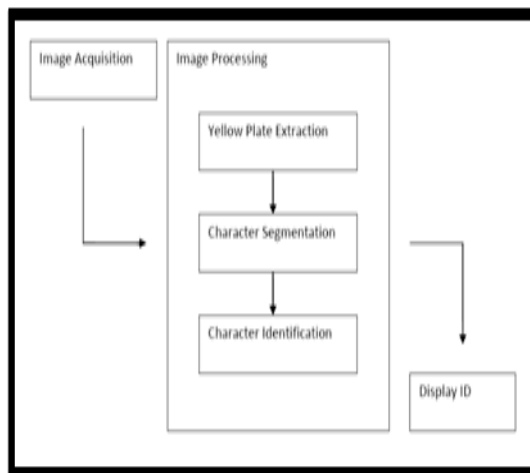

System Flowchart

System Flowchart

PROPOSED WORK

In this project here we've tried to AUTOMATIC registered number plate recognition system with security via range validation, gate management on real time and email notification.

This work is predicated on planning and building a man-machine interface to decipher the registered number plate .The result are shown on the pc and also the real time hardware is controlled .Since the image captured by the

conventional USB camera isn't economical show we've taken high resolution camera captured static image of the amount plate as input
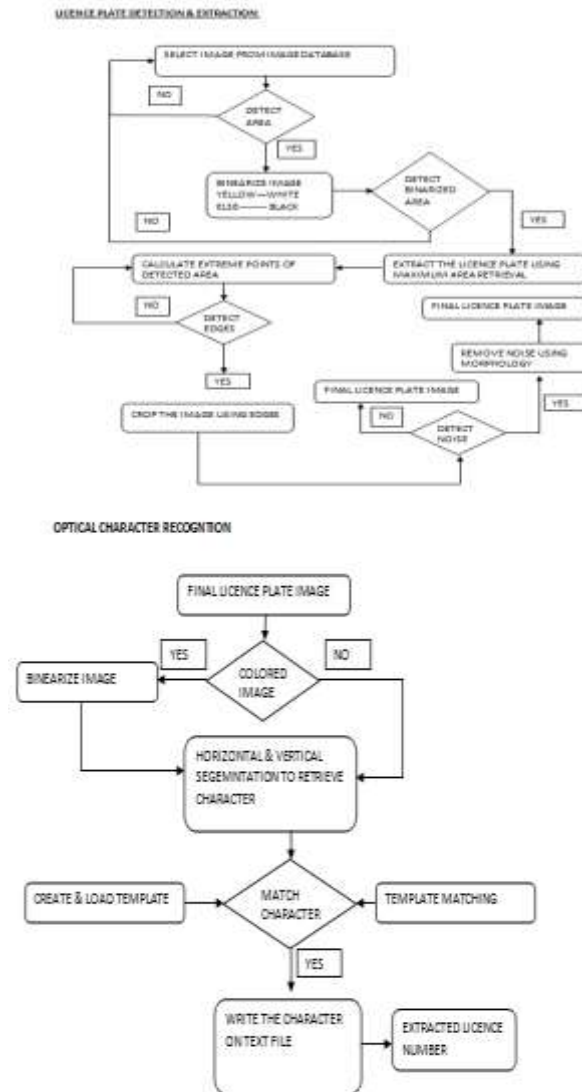
Our rule performs the operation on the idea of following steps:

- Image Acquisition
- RGB colours based yellow plate detection that's content based image retrieval
- Morphological operations for higher image
- Filtering on the image
- Edge detector to urge the registration code
- Optical character recognition
- Inversion of image
- Horizontal & vertical segmentation for character segmentation
- Morphology on every phase
- Image to text conversion exploitation model matching
- Output on document
- Database within the stand out file
- Validation by scrutiny to stand out info
- Serial acknowledgement on USB port for hardware

## HARDWARE SETUP
Blocks In Brief
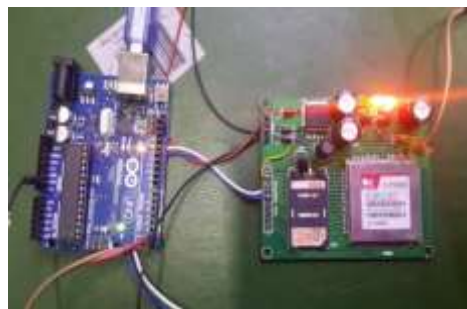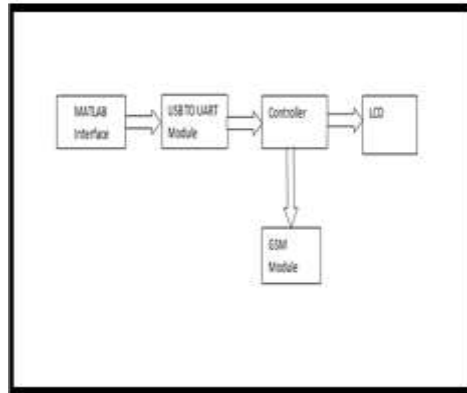
RESULTS & DISCUSSION

The goal has been achieved in 2 steps. In this paper author has enclosed the conception of embedded system and MATLAB primarily based image acquisition and process wherever the author process the image to extract the vehicle number from the vehicle image. A excel database has been managed for the vehicle information like number owner mail ID & police number etc. The system checks the extracted number , checks for date and & if the date and number are different that even odd or odd even send and copy of CHALLAN to the user on the mail ID in database and send UART acknowledgement to controller unit which read the acknowledgement and send the vehicle information to police in SMS form via GSM.

However results have been analyzed on numerous automotive plate pictures to demonstrate the output stages the author has shown the stages for the single image to describe the results.

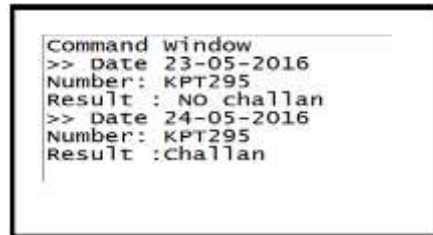|	A	B	C
1	Vehicle No.	Email ID	Mobile Police
2	KPT295	sakshi91ss@gmail.com	7838643056
3	UP32DA8735	sakshi91ss@gmail.com	
4	FBR444	sakshi91ss@gmail.com	
5	874VA	sakshi91ss@gmail.com	
6	UP32DA8765	sakshi91ss@gmail.com	
7			

Database Image
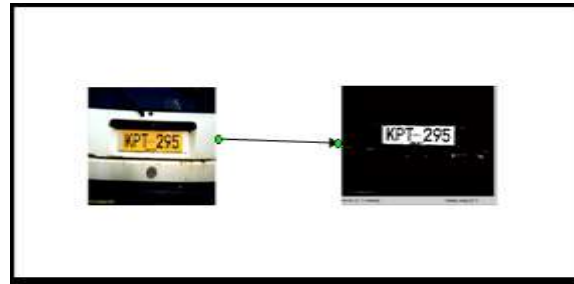
Extraction
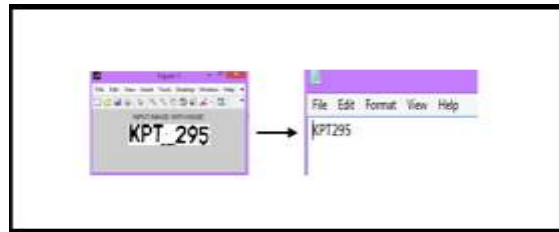
Text Form

Result

OUTPUT ON MATLAB

The MATLAB code extracts the number and gives on the text output. The code checks for the date and odd even concept for the number p[late and display the status on command window. If the rule is being broken the excel database is accessed by the MATLAB code to retrieve the Email ID to concerned number and send CHALLAN information on the mail ID and UART notification to the hardware device.

Email Notification
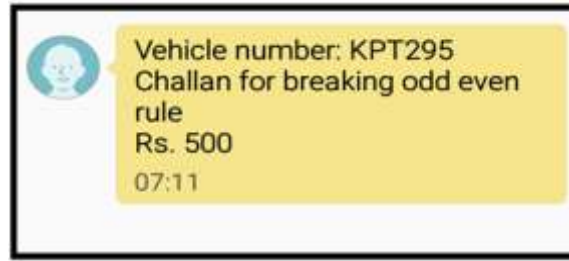
Message to police

FUTURE SCOPE & CONCLUSION

The higher than analysis work implementation has used a quick formula for recognizing number plate for EVEN/ODD ,traffic management ,toll management application and for automating the work of a traffic police .If once this system installed o Every red light then it also covers the area of traffic light breaking vehicle in which they identify the number plate and This system is that much capable it will automatically send notification to vehicle owner for his rule breaking if it has that much vast database which cover the vehicle owner identification this will reduce so much burden from traffic police and automate all the system . Authors have designed associate degree AVR based mostly system that has ATMEL micro-controller embedded surroundings to receive fastened set of UART notification on a fairly valid variety plate and developed a user interactive ALPR system with validation victimization surpass information.

The future prospectus can be GPS device add on and integration with IOT device to make it globally available.
The system can be integrated with the android   application also for tracking and surveillance.

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