

By: Yash Jain

Badal Davda

Vaibhav Bavishi

Under The Guidance Of: Prof. Nisha Vanjari
Co-Guide : Chandrakant Deshmukh (Mastek)

TABLE OF CONTENTS

- INTRODUCTION
- CURRENT SITUATION
- SURVEY
- APPROACHES
- SOLUTION

- MODULE DIVISION
- CURRENT IMPLEMENTATION
- EXPECTED RESULTS
- FUTURE SCOPE
- REFERENCES

INTRODUCTION

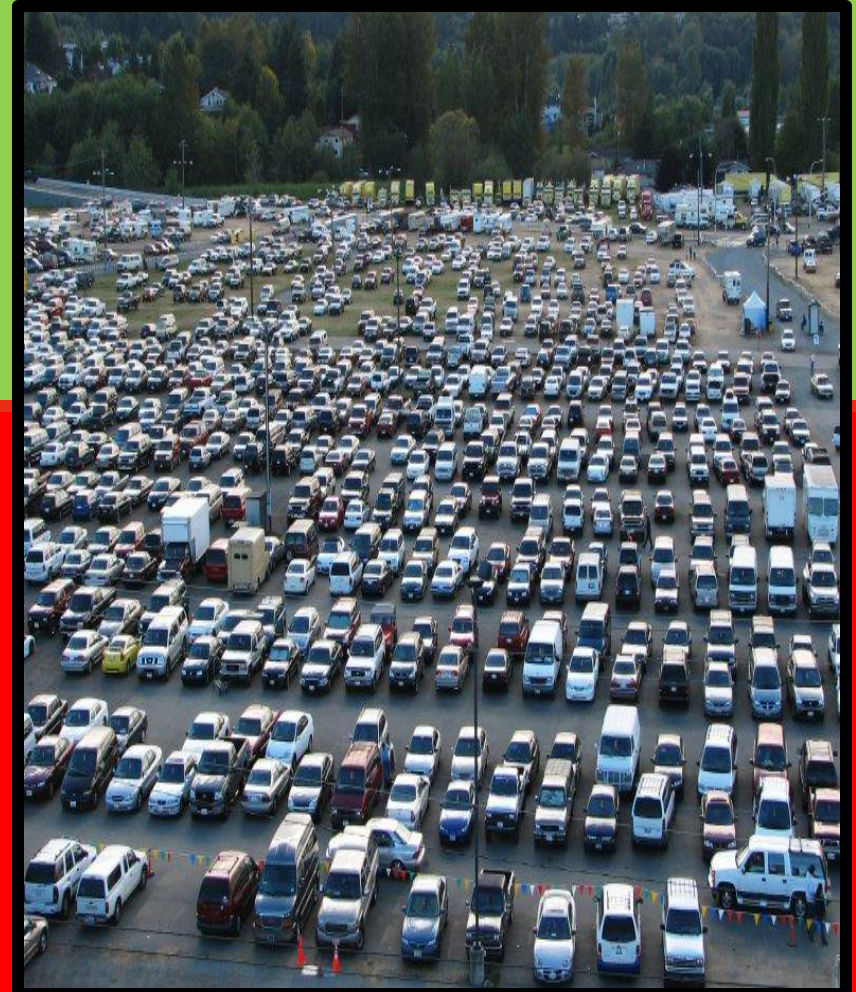
Goal

- Improving the current system of parking lot management

Objectives

- Create a system which can be cost-effective
- Tracking of parking space across the parking lot using image processing techniques
- Making that data available to consumers through a mobile application

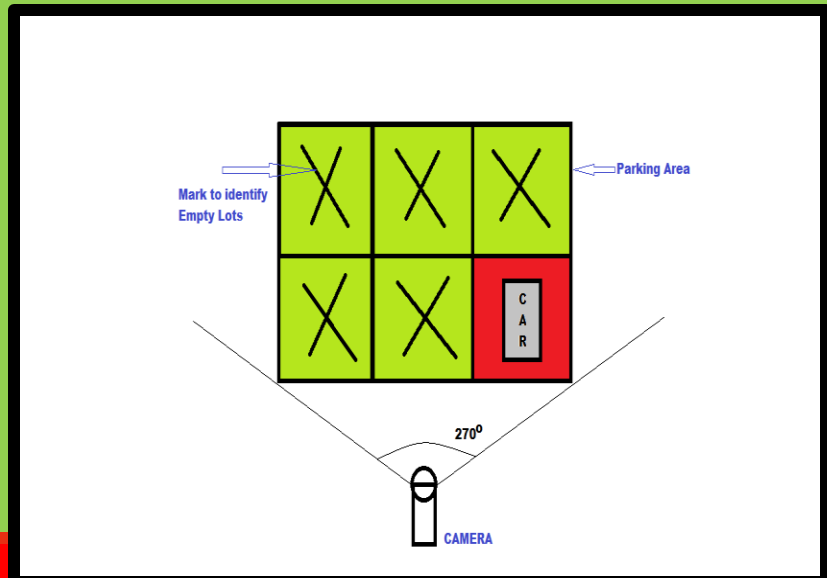
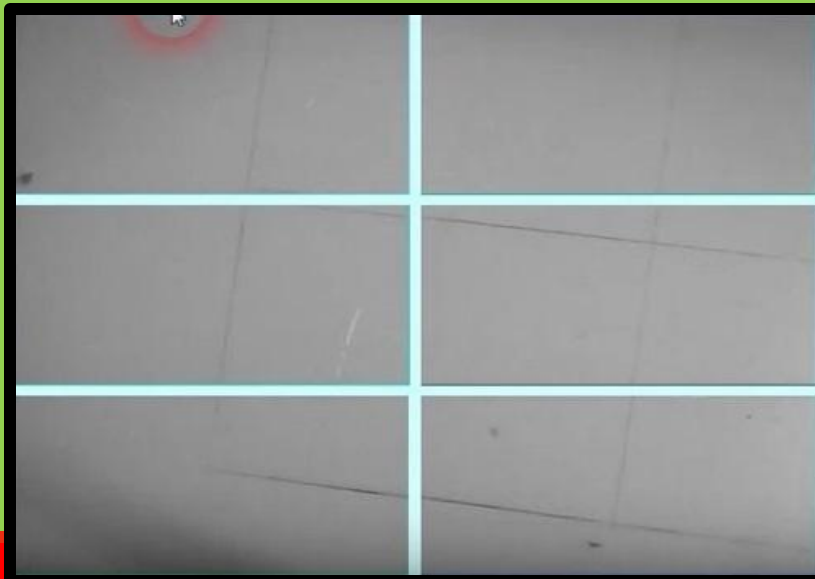
CURRENT SITUATION



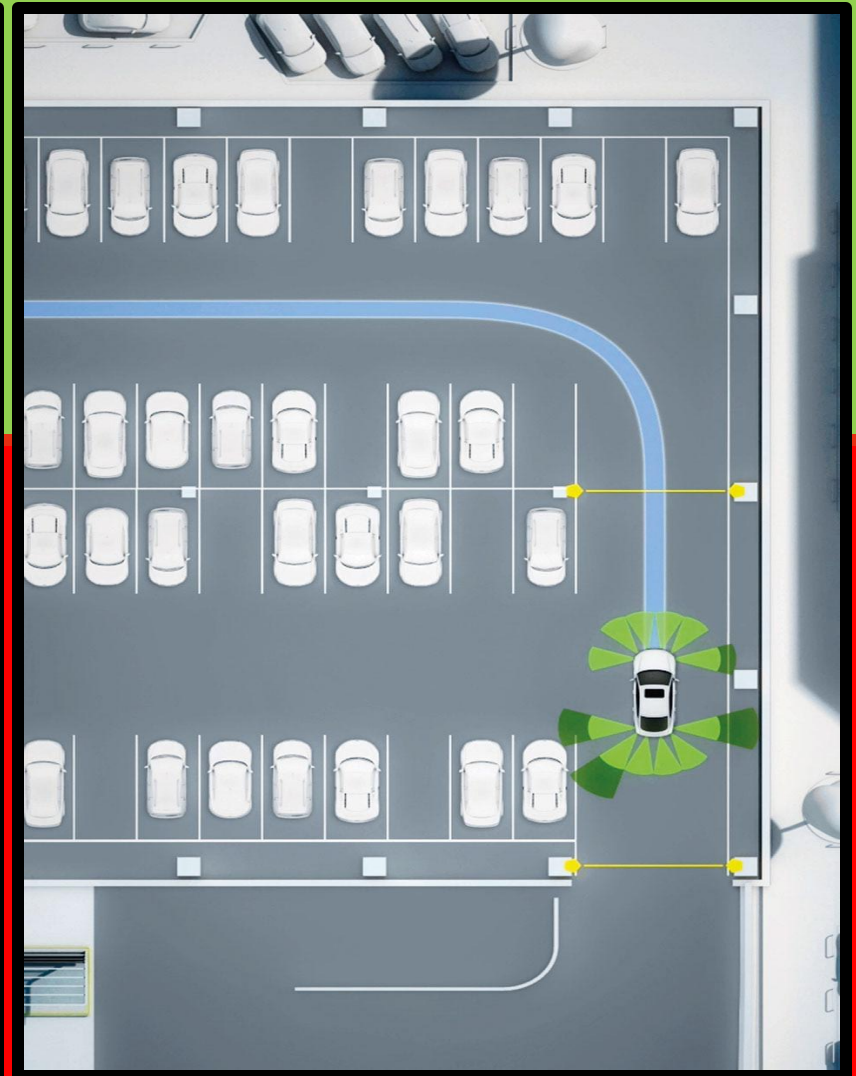
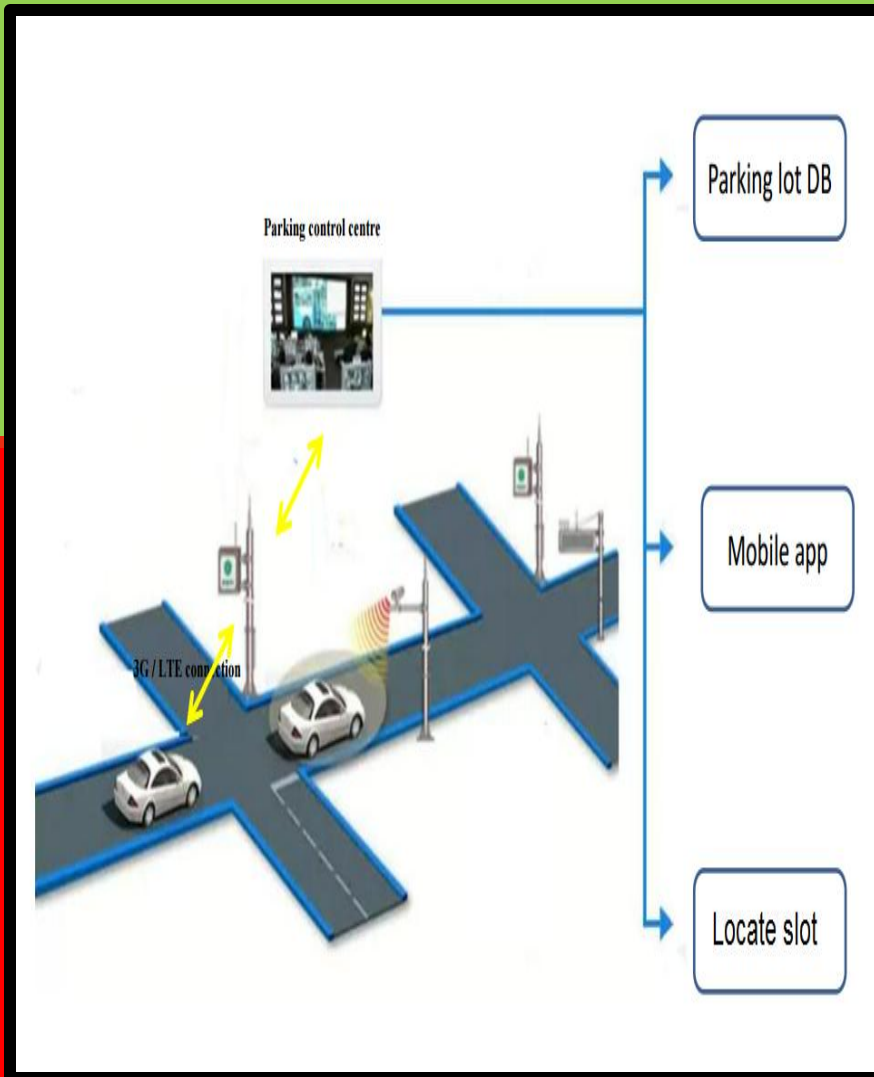
SURVEY

- People spend more 15-20 mins in parking a car than usual
- 2-5% of fuel is wasted just to find a parking lot
- Extra man power required to guide the people to the empty lots
- 10-20% of parking lots are unused due to non-linear parking occurrences

APPROACHES

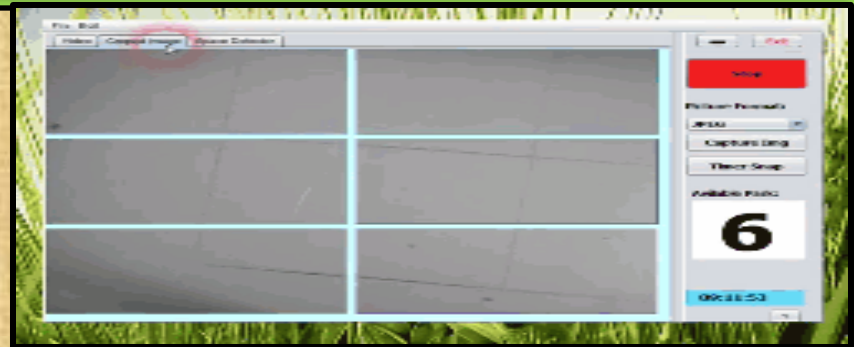


SOLUTION

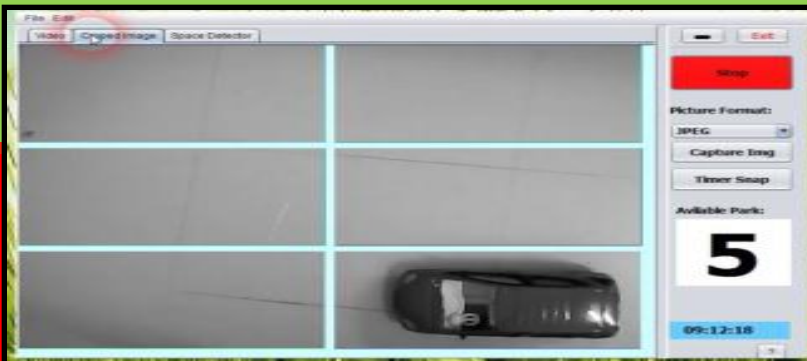


MODULE DIVISION

Module 1: Detection of parking slots by CCTV cameras and sending the information to the server

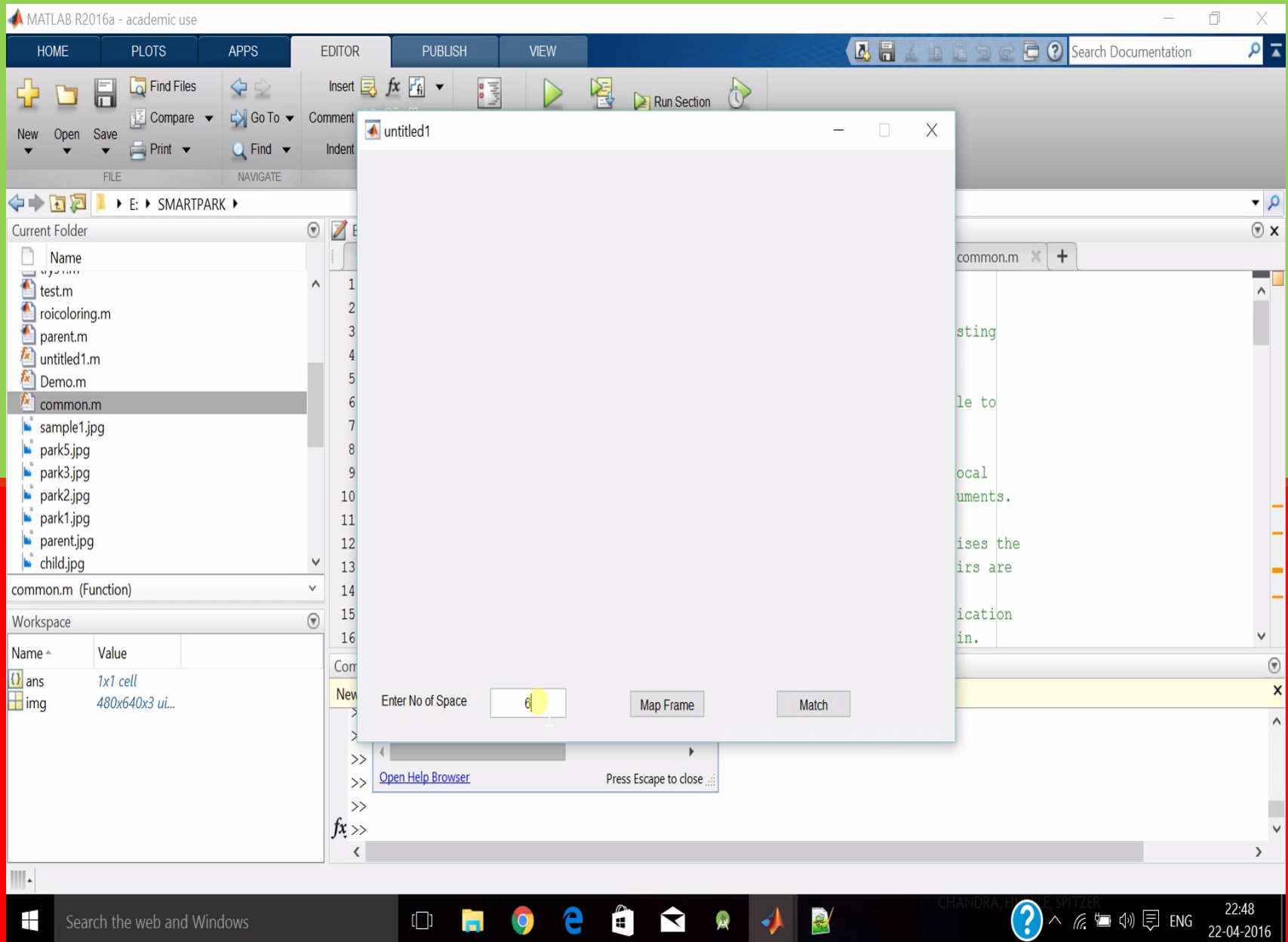


Module 2: Scanning of parking slots by the CCTV cameras using image processing algorithm and sending the live information online



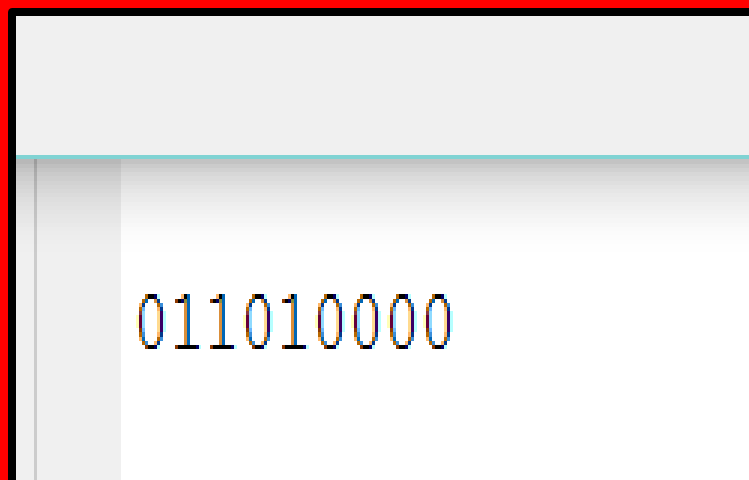
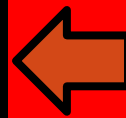
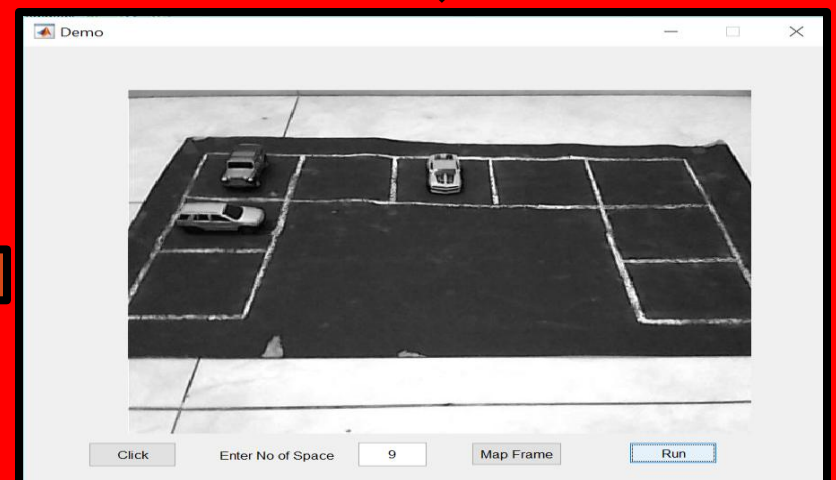
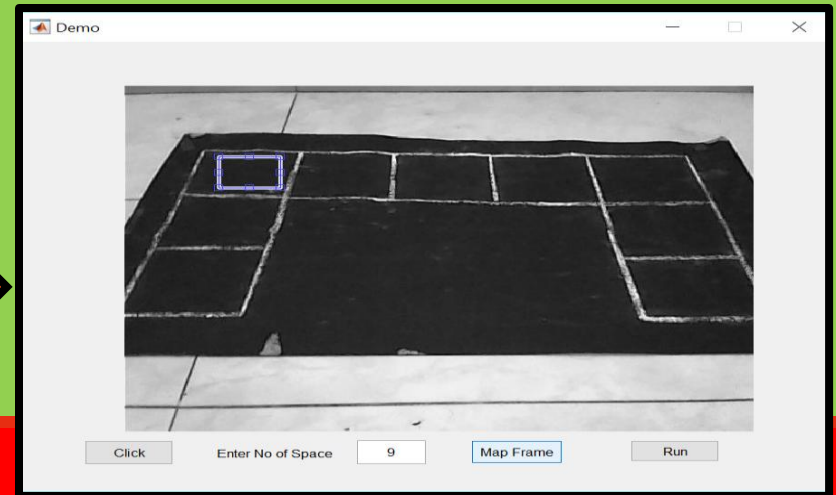
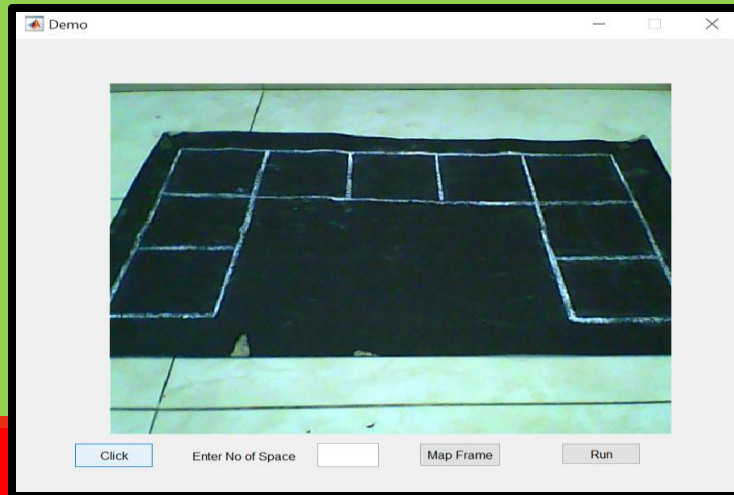
Module 3: Displaying the status of the parking area on a dedicated android application





CURRENT IMPLEMENTATION

ADMIN SIDE



CURRENT IMPLEMENTATION

SERVER SIDE

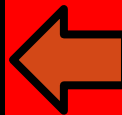
011010000



+ Options				park	status
<input type="checkbox"/>	Edit	Copy	Delete	1	0
<input type="checkbox"/>	Edit	Copy	Delete	2	1
<input type="checkbox"/>	Edit	Copy	Delete	3	1
<input type="checkbox"/>	Edit	Copy	Delete	4	0
<input type="checkbox"/>	Edit	Copy	Delete	5	1
<input type="checkbox"/>	Edit	Copy	Delete	6	0
<input type="checkbox"/>	Edit	Copy	Delete	7	0
<input type="checkbox"/>	Edit	Copy	Delete	8	0
<input type="checkbox"/>	Edit	Copy	Delete	9	0



```
smartpark.16mb.com/json X sql28.hostinger.in / localh X  
← → ↻ smartpark.16mb.com/jsoncall2.php  
{ "posts": { "String": "011010000" } }
```

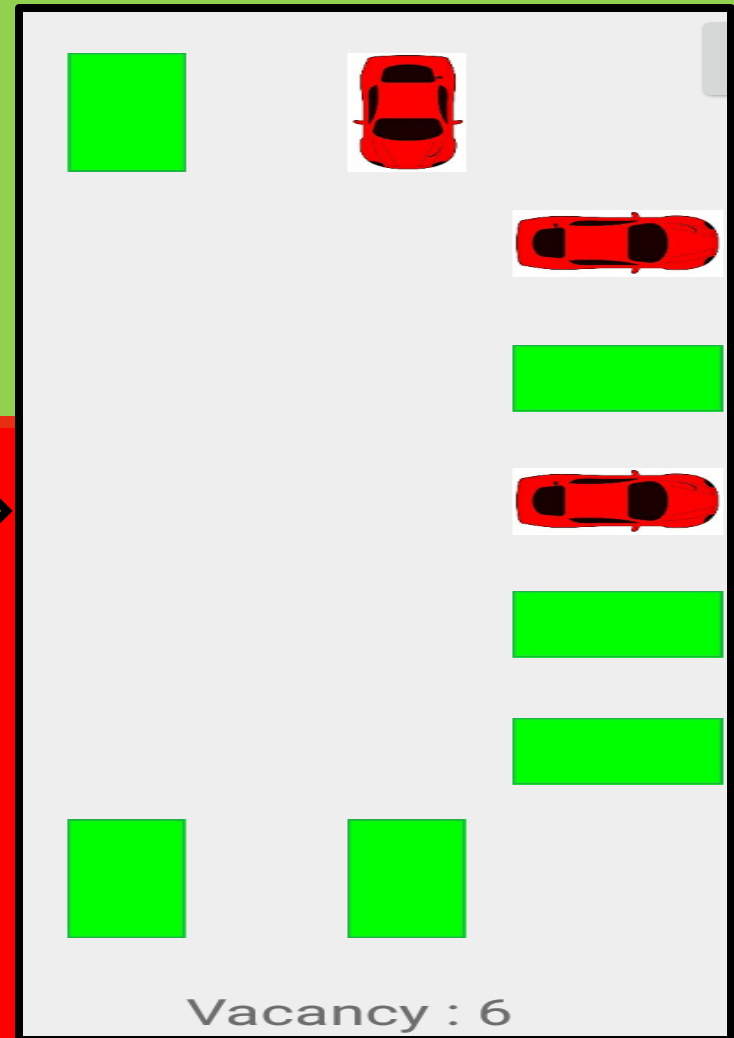
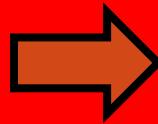
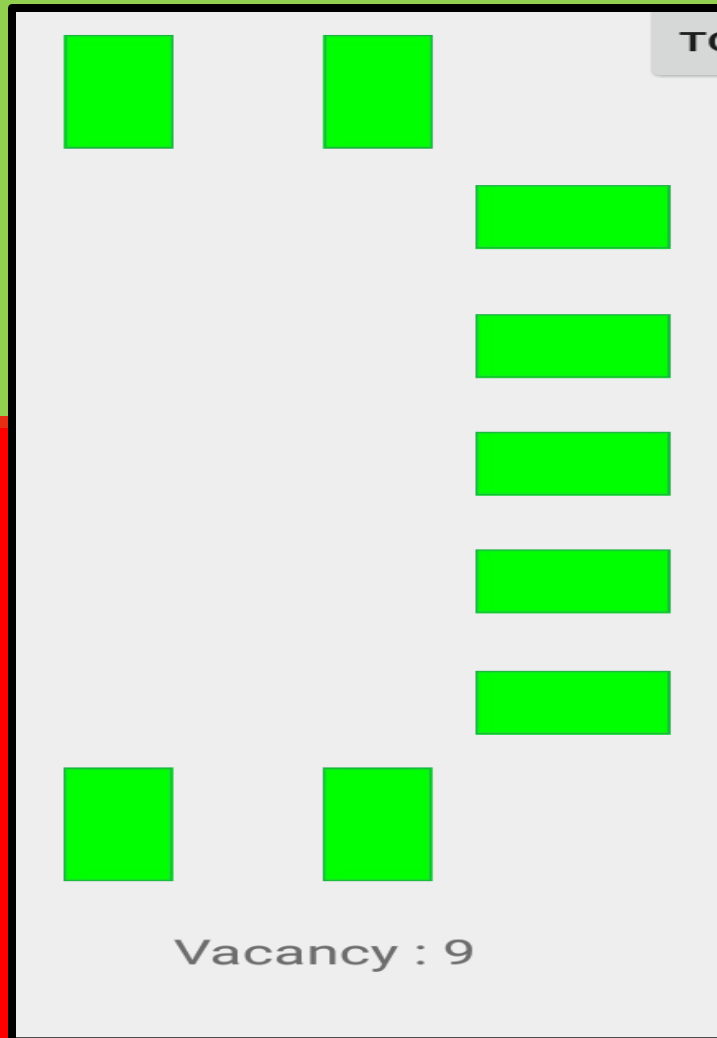


TO

Vacancy : 9

CURRENT IMPLEMENTATION

USER SIDE



EXPECTED RESULTS

- Average of 10-15 mins of time will be saved
- Will reduce fuel wastage and thereby pollution
- Man power will cut down by half and thus reduced cost
- Entire parking area will be utilized due to linear and organized parking

FUTURE SCOPE

- In recent future we intend to perform different types of algorithms using neural networks on the application through which system would be able map frames by itself on any given parking area
- Integrating different camera feeds for a single virtual map (many to one mapping) using string integration
- Security features like face detection, number plate detection, parking space booking, frequency of parking space availability, etc

REFERENCES

1. Design and Implementation of an Intelligent Parking Management System using Image Processing, IJARCT, Vol. 4(1), January 2015.
2. Intelligent Parking Space Detection System Based on Image Processing, International Journal of Innovation, Management and Technology, Vol. 3, No. 3, June 2012.
3. Intelligent Parking Management System Based on Image Processing, World Journal of Engineering and Technology, 2014, 2, 55-67.
4. COUNTING AVAILABLE PARKING SPACE USING IMAGE PROCESSING, University College of Engineering & Technology Malaysia, April 2010.
5. Vacant Parking Space Detection in Static Images, Nicholas True, University of California, San Diego.
6. Car Park Bay Monitoring System.
<https://www.youtube.com/watch?v=R9V1NCC6NPk>
7. Parking Space detection based on camera and image processing.
<https://www.youtube.com/watch?v=8A7vfMP0r7s>

THANK YOU!

