**Group Id :- BE Comp/PRJ/18-19/01**

**Harshada Sharma**

**Aastha Kansal**

**Pranita Shidore**

**Aditi Sonawane**

1. **Title of the topic:** Intelligent parking management system for an educational hub
2. **Area of topic:** Internet of Things, Image Processing, Data Analysis, Data Gathering
3. **Abstract:**

The Parking Guidance System focuses on dynamically allotting parking spaces to the students, staff as well as visitors. Pre requisites of this system will be analysing the total area of parking in the educational institute campus and dividing it into feasible blocks for separate 2-wheeler and 4-wheeler parking. This will be done using the standard measurements which are- for 2-wheeler area required for parking is 3\*6 feets and that for a 4-wheeler is 9\*18 feets. Also, the details of the vehicles used by students and staff will be collected and this database will be checked by the system to identify entry of authorized and unauthorized vehicles in the campus. In case of visitors as their vehicles will be unregistered, a manual verification check will be done by guards. The students, staff and visitors will be dynamically allotted parking space nearest to their intended locations through an application which will show the available parking slots. Detection of occupied parking slots will be done through light signals and sensors. This system will maintain the record of total number of vehicles being parked. This data will be analysed using appropriate algorithms to predict the amount of vehicles incoming the campus on various occasions (eg. Annual Gathering) and the solution to park excessive vehicles. The aim of the system is to make maximum(full) use of the parking space and reducing the time and fuel spent in search of available parking slot. This system also prohibits unauthorized parking .

1. **Briefs about Contents:**

**4.1) Purpose and Motivation:** Current parking experience may range from delayed meetings to deflated tyres the act of angry residents fines in no-parking zones, stolen valuables to even vehicles getting towed away. If the new person comes to the campus then have no idea where to park and which parking is for visitors. With 800,000 cars and 15 million two-wheelers being added to Indian roads every year, finding a place to park is an everyday battle

**4.2) Scope:**

* To develop system that a RFID-based intelligent vehicles parking system.
* The software has been handled for the management, controlling, transaction reporting and operation tasks for parking lots located on various areas of college
* Check-ins and check-outs of the parking-lots under control with RFID readers
* Check-ins and check-outs will be handled in a fast manner
* Locate the parking lot to the new user
* Detect the the vehicle automatically by detecting the number plate of vehicle
* To increase the efficiency of existing manual parking system.

**4.3) Perspective and functions:** The system focuses on eliminating the traditional parking system

**4.4) User Classes and Characteristics:** This system will be basically used by the students staff (teaching and non teaching) security guards :

Student- the role of students is using the application and to get a parking space easily

* Staff- there will be no need for searching a free space for the staff as well as the staff can get the Data about which student come late everyday
* Guard - they will have the role of helping visitors at the gate and then keeping a look on the data base

**4.5) Operating Environment :**

* **Hardware requirement:**
* RAM: 8GB
* Hard Disk:500Gb
* RFID tags and readers
* Camera
* Arduino
* **Software requirement:**
* Language / technology: java, Android
* Operating system: windows 7
* Database: MySQL
* Software with version:

1) Jdk 7

2) Eclipse

3) Apache tomcat 7

4) Android SDK

**4.6) Working:**

* Receive values from RFID receiver
* Vehicle Number obtained by OCR image processing
* Entry of Data in Database
* Data analysis on Data gathered using most appropriate algorithm.
* Show parking slot to the user using electronic display and application
* Show parking slot to the new user using electronic display.

**4.7) Future Work:** The future of the smart parking market is expected to be significantly influenced by the arrival of automated vehicles (AVs). Several cities around the world are already beginning to trial self-parking vehicles, specialized AV parking lots, and robotic parking valets.

1. **References / Bibliography**

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* R. Yusnita Fariza Norbaya Norazwinawati Bashruddin. “Intelligent parking space detection system based on image processing”. International Journal of Innovation, Management and Technology, 3:232-235, 2012.
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