INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)

Dundigal, Hyderabad - 500 043

ExEED- Project Based Learning Prototype Submission Format

1. Student Details

Name of the Student	Roll Number	Branch	Mobile Number
GURRAM ANKIT	20951A0415	ECE	8374504376
GOLLA BHUPAL	20951A0430	ECE	6300065835

2. Title of the Innovation or Prototype

PARKING INDICATOR

3. **Define the problem and its relevance to today's market / society / industry need (Max: 100 Words)**

To easily find an unoccupied parking space in the larger car park is a problem for many drivers. During the last four-decade, there are many parking models are developed. But the models still cannot solve the parking problem. The Car parking indicator system could be used for residential buildings, hotels, offices, shopping centre and show rooms, universities, government buildings, airports, hospitals, and stadium. The advantages of the car parking indicator system are efficient usage of spaces, slots, proper directioning, automatically allotment of slots, display of empty and filled parking slots. This proposed system is especially designed for private parking spaces and this system is not suitable for open parking spaces. The parking space will be monitored by AVM camera. Ultrasonic sensor is mounted in the road, to provide exact direction to the car on the lane. As soon as car enters, driver gets information of the filled slots and empty slots on big display board. As the driver moves further, he will get a message of allotted parking slot and navigation for that slot on small display board situated in the inner lane. When all slots are full, No slots available message displays on the display board.

4. Describe the Solution / Proposed / Developed (Max: 100 Words)

The objectives of proposed work are as follows:
1) Improve on the current parking management systems.

2) Enable drivers to locate and reserve empty parking slot at the entrance and remotely. This should be provided by a small display panel at the entrance of the parking and near to every parking slot. It should show the parking number and the state of the parking.

3) To allot automatically generated empty parking slot in the car parked for the ease of parking.

4) To show the exact location, parking slot with direction, when it is near to the allotted parking slot.

5) Monitor the state of a parking slot. The parking slot may be fully in use or free. This system seeks to constantly monitor what is happening in the slot to identify parking spaces that are available or occupied.

6) Collect the time and date of activities happening in each parking slot. Every time the state of the parking slots changes, the date and time should be captured.

5. Explain the uniqueness and distinctive features of the product / process / service solution (Max: 100 Words)

Users of automobiles spend a lot of time in the parking slot trying to locate where to park. In today's ever busy working environment, drivers hardly have time to spend in parking bays looking for where to park. In many places, especially around shopping complexes, universities, city centres, and many other busy working environments, finding parking have been noted as one of the major causes of stress in the lives of individuals who drive. The traditional method of finding parking by the naked eye has several irritating situations. In situations where a driver is walking towards a car or is in the car, the other drivers waiting to find parking often make signs, or whistle or try to do something intending to ask the other whether they are pulling out. Though this kind of asking might help most of the times, it leads to situations which are often inconveniencing to other drivers.

In busy towns and cities, parking management still poses a challenge that keeps growing more complex. The need for efficient parking management systems cannot be emphasized enough for such cities. This study thus seeks to provide a solution to the issues above using the latest sensing and telecommunication technology.

6. How your proposed / developed (product / process / service) solution is different from similar kind of product by the competitors if any (Max: 100 Words)

Automatic Car Parking Indicator system proposes systematic entry and exit paths to the car park. A barrier system is implemented at the entry and exit paths. The systematic entry and exit paths will only allow entry when parking spaces are available. There will be points of entry and points of exit and a defined path of motion for cars entering and exiting.

7. Utility: Highlight the utility/value proposition (key benefits) aspects of the solution/innovation* (Max: 100 Words)

This system is aimed to guide a parking slot seeker to lanes with an empty parking slot. This will be possible with a large display located at the entry point that will be possible with a large display located at the entry point that will inform the parking slot seeker the number of available slots. Once entry is allowed, lanes that has empty parking slot will be displayed to the user and easily accessed. One will not have to dwell and find a parking slot. This will also help one form wasting precious time locating a parking slot.

8. Scalability: Highlight the market potential aspects of the Solution/Innovation (Potential Market Size, segmentation, and Target users/customers etc.) (Max: 100 Words)

the sensor operation principle and parking lane in the project. Sensors are mounted in the road and show the empty parking slot and allotted parking slot to the car parker. This sensor works like a Radar and Sonar. This sensor continuously transmitting and receiving waves. When one of the cars enters and goes through these sensors it shows the information of empty slots, direction to that slot, and blocks the slots
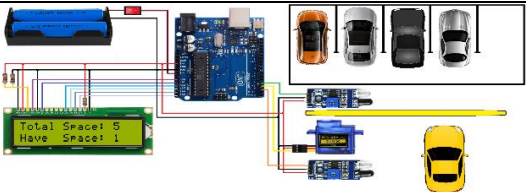
9. **Economic Sustainability: Highlight commercialisation/business application aspects of the solution (how it is going to economic profitable and viable) (Max: 100 Words)**

This project will help many of the commercial businesses that are at place like malls they reduce the man power after using this technology and this a profitable to the market and the for the persons using it.

10. **Environmental Sustainability: Highlight environmental friendliness aspects and related benefit of the solution/innovation (Max: 100 Words)**

This is most convenient to the parker that they can easily find a slot and park in appropriate way.

11. Details of Prototype

Components	- ARDUINO - IR PROXIMITY SENSOR - SERVO MOTOR - JUMMPERS - LED - BATTERY
Budget	**Our product budget is around 1500 Rs**
Images of prototype	
Video Link	**https://drive.google.com/drive/folders/1igV0lCw81GTcfpsuAmF SLZEmVLrB1cwD?usp=share_link**

Signature of the PBL faculty In-charge