

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

“Jnana Sangama”, BELAGAVI – 590018



AICTE ACTIVITIES REPORT ON

“URBAN PARKING MANAGEMENT SYSTEM”

**Submitted Fulfillment For the Award of Points For AICTE
Activity Point Program**

Submitted By

MANOJ S (4MH21CS048)

M P CHANDAN (4MH21CS045)

KOUSHIK BHARADWAJ R (4MH21CS041)

HARISH N (4MH21CS031)

Under the Guidance of

**Kiran kumar L
NSS Co-ordinator**



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

MAHARAJA INSTITUTE OF TECHNOLOGY MYSORE

Belawadi, S.R. Patna (T), Mandya (D) – 571477.

PARKING MANAGEMENT SYSTEM

1.PARKING ISSUES IN URBAN CITIES:



Parking issues in urban cities are a common challenge due to limited space, high population density, and increasing numbers of vehicles. This can lead to congestion, increased pollution, and frustration among residents. Solutions often involve better public transportation, carpooling incentives, improved parking management systems, and promoting alternative modes of transportation like biking and walking.

2.ISSUES RELATED TO PARKING:

- **High Costs:** Limited parking spaces can drive up the cost of parking, making it expensive for residents and visitors.
- **Illegal Parking:** The lack of available parking spots can result in illegal parking in unauthorized areas, causing traffic disruptions and safety hazards.
- **Land Use:** Large parking lots take up valuable land that could be used for other purposes, such as green spaces, affordable housing, or commercial development.
- **Inefficient Infrastructure:** Older cities might not have been designed to accommodate the high volume of vehicles, leading to outdated and inefficient parking infrastructure.

SOLUTION BY EFFECTIVE PARKING MANAGEMENT SYSTEM:

In order to solve the parking problems in urban areas, we must make use of the available space and create an effective infrastructure to park sufficient number of vehicles as shown in the model below:



This model demonstrates how effectively we can make use of the available space to gather more vehicles. This method can be implemented in multi-story parking system. Where there are specific slots for a particular vehicle. When a person enters the multi-story parking a display appears in front of him which displays the available free slots in the parking. The display contains the information of the slot number along with the floor level. There will be separate entry and exit gates making the movements of vehicle in and out hassle free. A person can easily find the free slot and can park their vehicle. By this a person can save the time wandering around the parking slot.

MODEL:

Electronic components used in this model:

1. BC 547 Transistor
2. 2.2k Resistor
3. LDR
4. Laser light

1. BC 547 Transistor:



BC547 transistor has a gain value of 110 to 800, this value determines the amplification capacity of the transistor. The maximum amount of current that could flow through the Collector pin is 100mA, hence we cannot connect loads that consume more than 100mA using this transistor. To bias a transistor, we have to supply current to base pin, this current (I_B) should be limited to 5mA.

When this transistor is fully biased then it can allow a maximum of 100mA to flow across the collector and emitter. This stage is called **Saturation Region** and the typical voltage allowed across the Collector-Emitter (V_{CE}) or Base-Emitter (V_{BE}) could be 200 and 900 mV respectively. When base current is removed the transistor becomes fully off, this stage is called as the **Cut-off Region** and the Base Emitter voltage could be around 660 mV

2.2.2k Resistor:



A 2.2K ohm resistor is a type of electronic component. It is helpful to limit the flow of electric current in a circuit. The term “kohm” is short for kilo-ohm, which means that the resistor has a resistance of 2.2 thousand ohms. This resistor has a variety of applications, such as voltage dividers, LED circuits, and other electronic circuits.

A 2.2K ohm resistor is an electronic component that has a resistance value of 2,200 ohms. It will limit the amount of current that can flow through it, according to Ohm’s Law.

3.LDR:

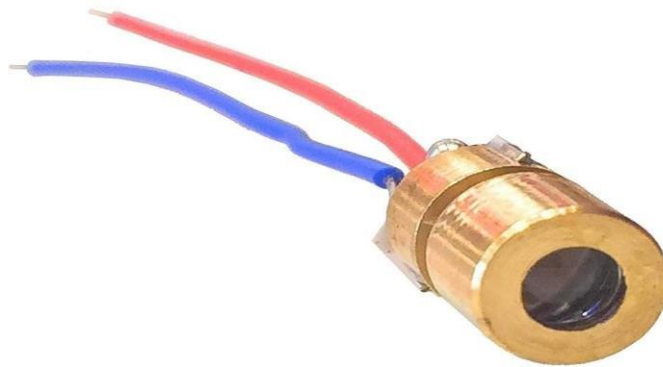


LDR (Light Dependent Resistor) as the name states is a special type of resistor that works on the photoconductivity principle means that resistance changes according to the intensity of light. Its resistance decreases with an increase in the intensity of light.

It is often used as a light sensor, light meter, Automatic street light, and in areas where we need to have light sensitivity. LDR is also known as a Light Sensor. LDR are usually available in 5mm, 8mm, 12mm, and 25mm dimensions.

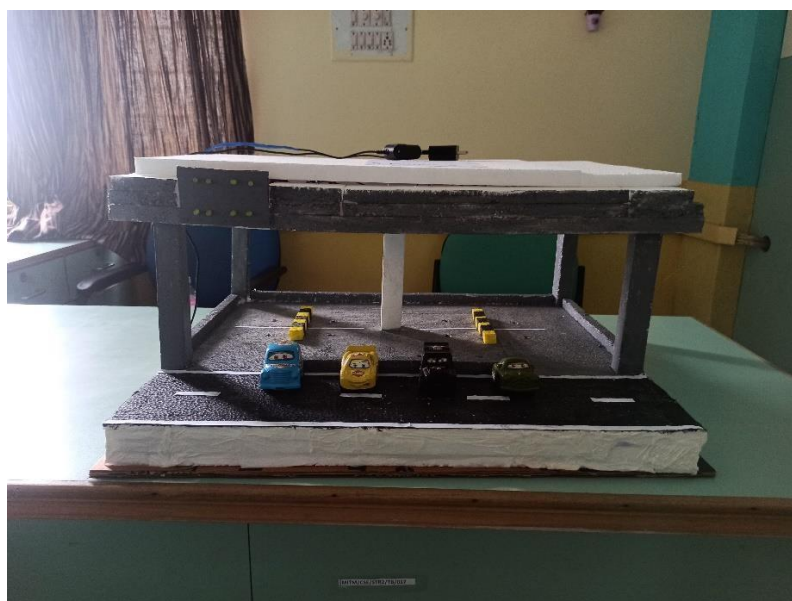
The Light-dependent resistors made with photosensitive semiconductor materials like Cadmium Sulphides (CdS), lead sulfide, lead selenide, indium antimonide, or cadmium selenide and they are placed in a Zig-Zag shape

4.Laser:



laser, a device that stimulates atoms or molecules to emit light at particular wavelengths and amplifies that light, typically producing a very narrow beam of radiation. The emission generally covers an extremely limited range of visible, infrared, or ultraviolet wavelengths. Many different types of lasers have been developed, with highly varied characteristics. *Laser* is an acronym for “light amplification by the stimulated emission of radiation.”

WORKING:





- Multiple laser lights are fixed in the base underneath the slots.
- These lights are connected in parallel.
- The LDR sensor is mounted on the ceiling.
- The light sensing and signaling circuit is prepared by connecting the 3.3k resistor, LDR, and BC 547 transistor.
- An output in the form of lights is connected to the display.
- When the slots are empty, the laser light emitted from the base falls on the LDR sensor mounted on the ceiling.
- The LDR senses the light and signals by turning on the slot light, indicating that the slot is empty.
- As soon as a car is parked in the slot, the laser light is blocked, and the LDR cannot sense any light.
- Then, the LDR signals that the slot is occupied by turning the slot light off.
- This is an effective way to make parking management hassle-free.