MAHENDRA INSTITUTE OF ENGINEERING AND TECHNOLOGY

PHASE:2

SMART PARKING

SMART PARKING:

Smart parking is **an electronic tool that enables the user to find vacant. parking spaces through information technology and by using appropriate sensors.**

INNOVATION OF SMART PARKING

Parking (yes, parking) has never been more important to the world than it is today. 20 years ago, one would have considered it improbable that parking would be vital to accomplishing weighty

goals like fighting climate change or achieving political equality.

Then the parking But with the capabilities that are increasingly being made available through smart parking innovations, it's looking more likely that smart parking may help save the world.

RESEARCH SYSTEM:

Research indicates that more than 1 million barrels of oil is consumed every day in the search for parking spaces. More than 44% of drivers find parking a stressful experience and the average driver spends 4 days every year looking for spaces to park.

All of this adds up to unnecessary congestion on roads and depletion of valuable real estate to construct more parking spaces. It also does nothing to stall the inexorable march towards global warming.

However, as we'll show in this

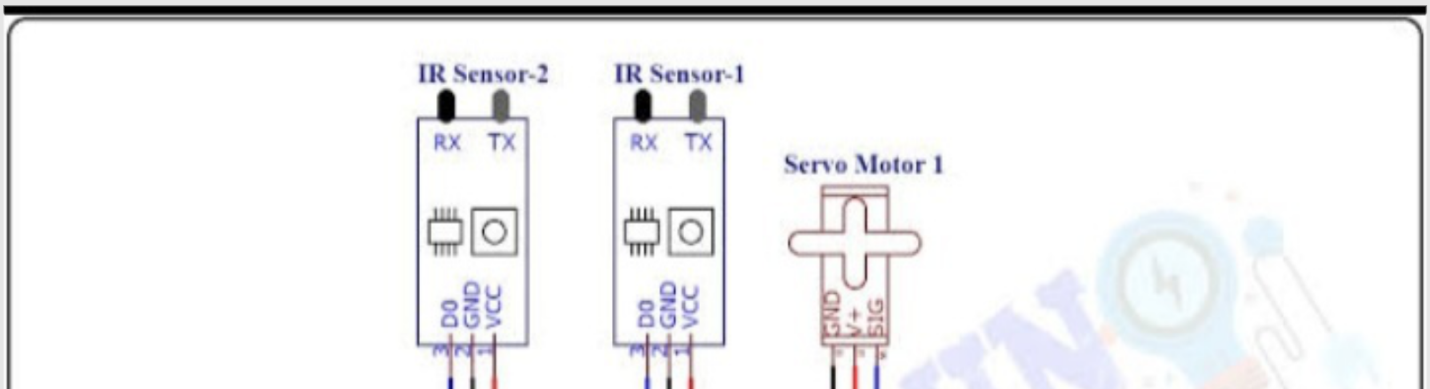
article, recent innovations in smart parking may be changing that narrative. We may not know it yet, but parking may yet save the world. Here are 10 smart parking innovations to look out for in 2020.

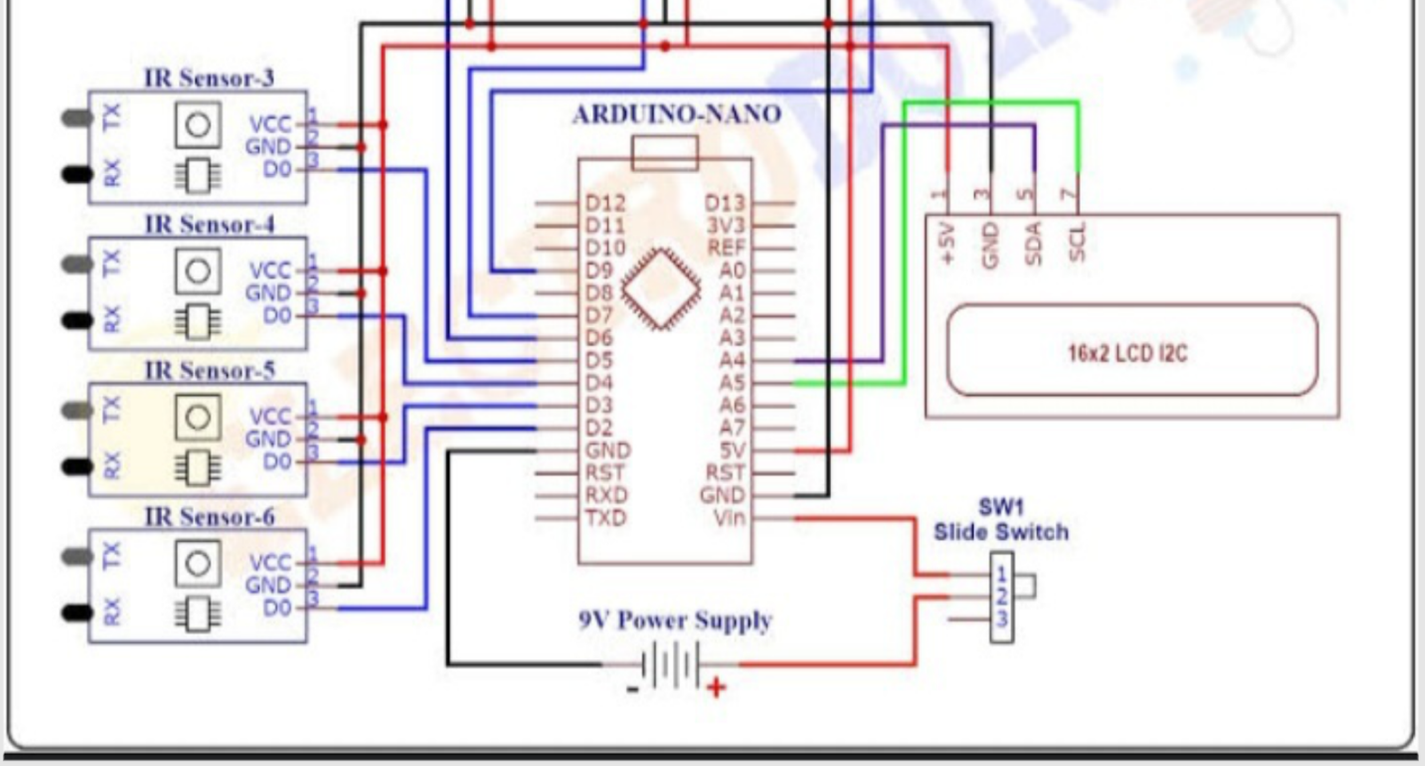
DESIGNING OF SMART PARKING SYSTEM

- The parking lot system should be able to park cars, bikes, and handicapped vehicles.

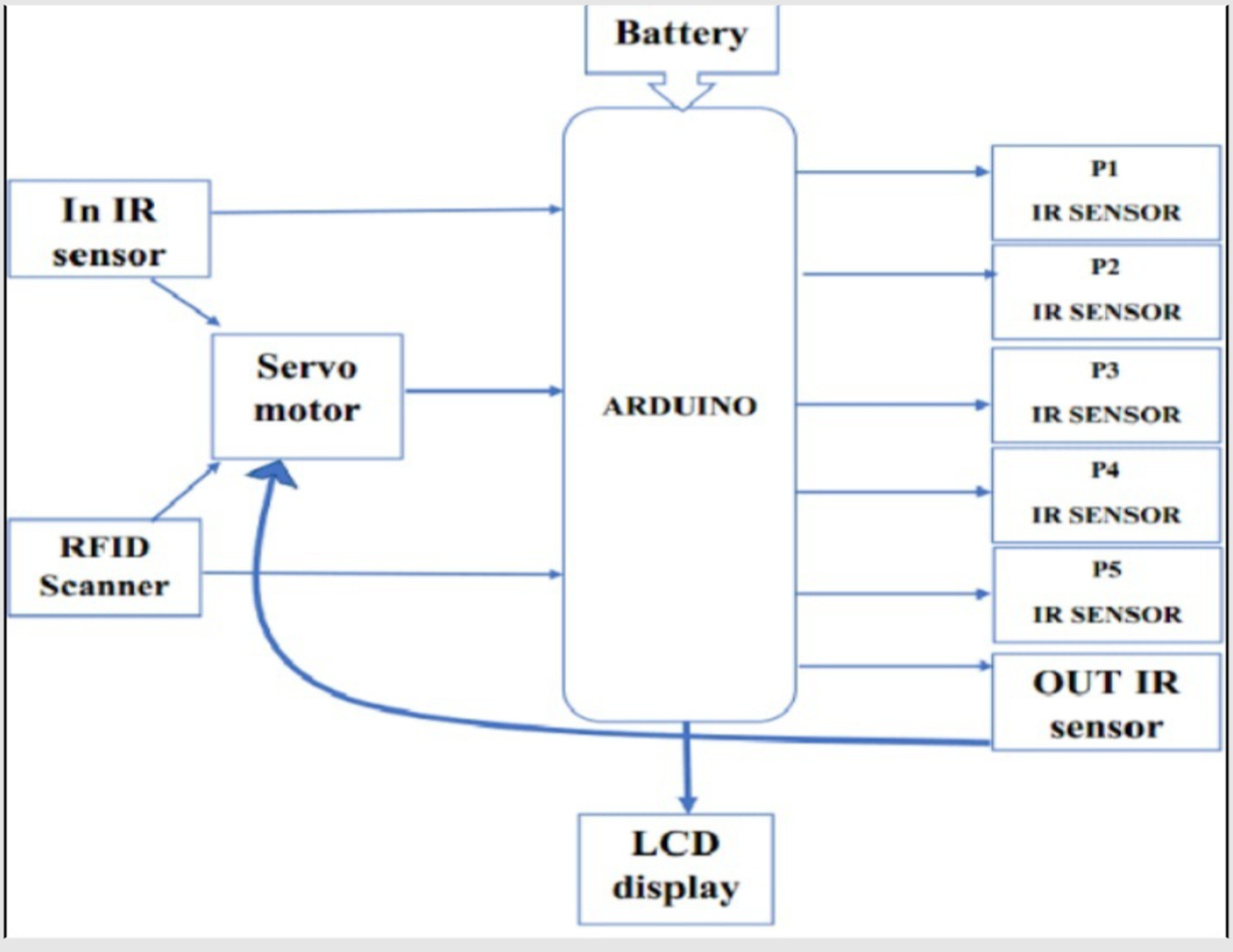
- The system should be able to calculate the cost of parking for each type of vehicle.

- The system should be able to keep track of the time a vehicle is parked.

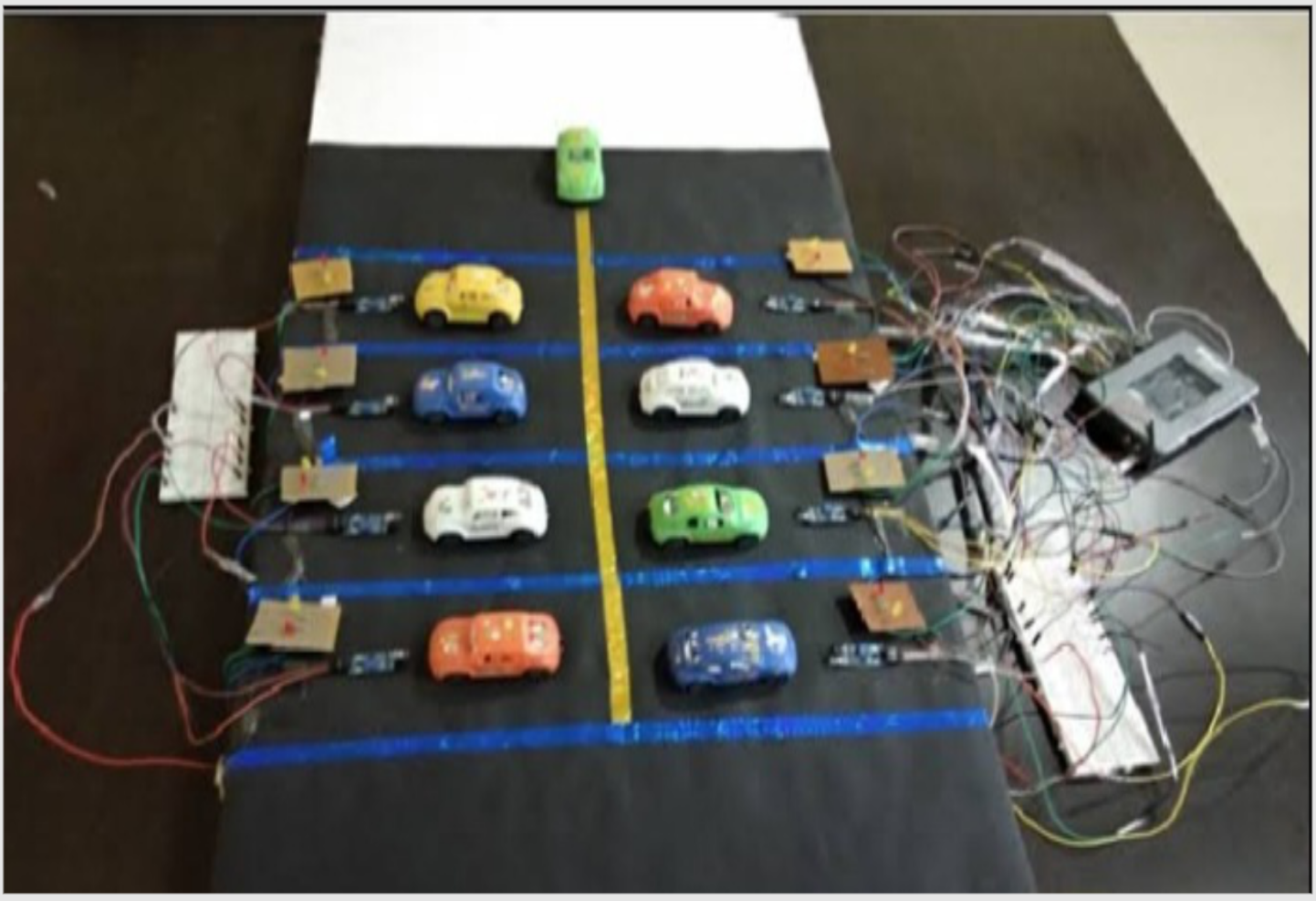


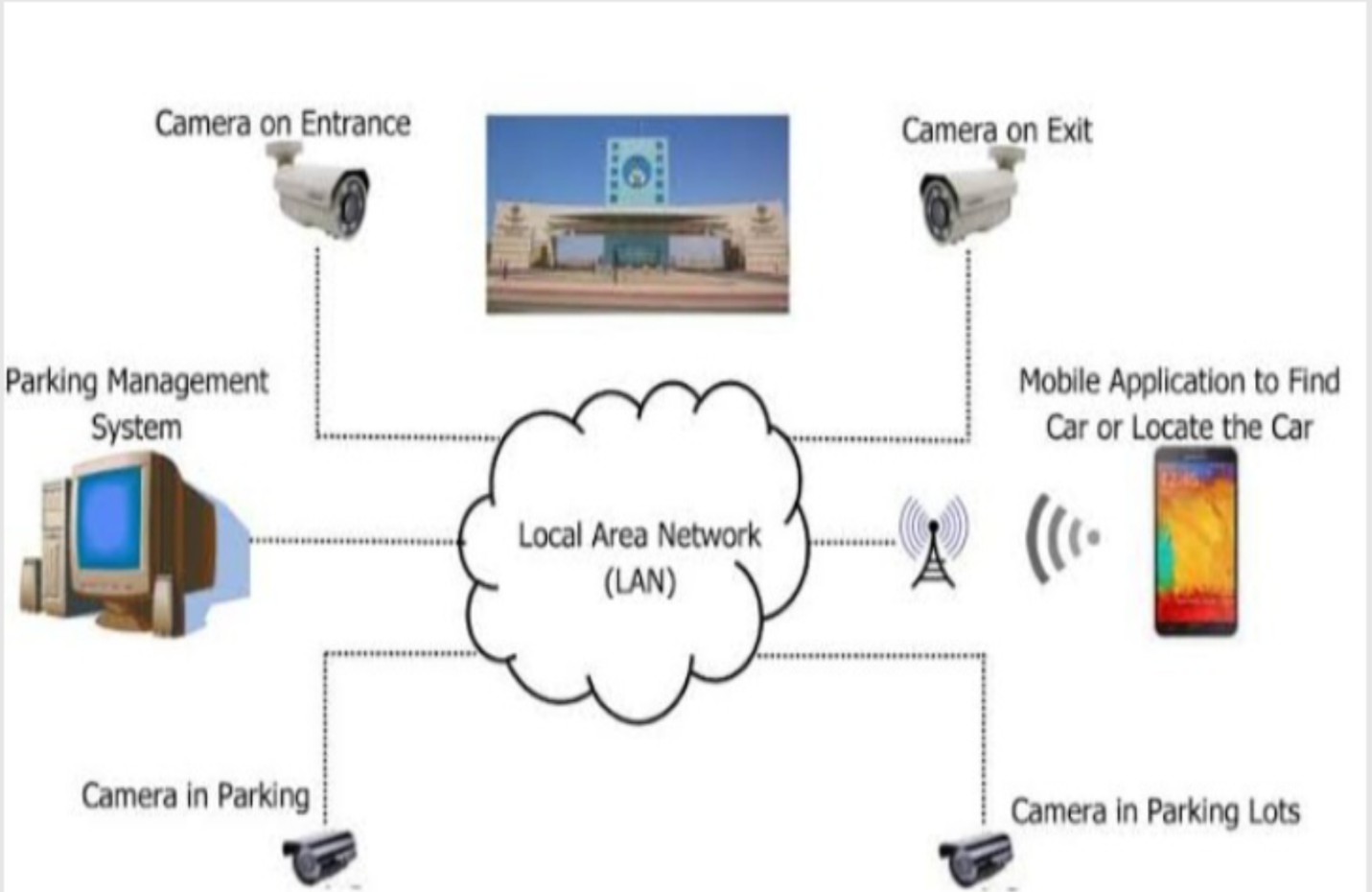


ARDUINO AND IR SENSOR MODEL:



PARKING SYSTEM:




Camera on Entrance
Camera on Exit
Parking Management System
Mobile Application to Find Car or Locate the Car
Local Area Network (LAN)
Camera in Parking
Camera in Parking Lots

PROPOSED SYSTEM:

The proposed smart parking system consists of **an onsite deployment of an slot module that is used to monitor and signalize the state of availability of each single parking space**.

TYPES OF PROPOSED SYSTEM:

- *IOT System*
- *Technical System*
- *Scope of Future System*
- *Design of Parking Functions*
- *RFID Parking System*
- *Digital Parking system*
- *Purpose of Management system*
- *Components of Smart Parking*

1.IOT SYSTEM:

IoT-based smart parking system **transmits available and occupied parking spaces via a web/mobile application**.

Each parking space has an IoT gadget, which includes sensors and microcontrollers. The user gets real-time updates on the availability of all parking spaces and, therefore, an option to choose the best one.

Smart parking development implies an IoT-based system that **sends data about free and occupied parking places via web/ mobile application**.

The IoT-device, including sensors and microcontrollers, is located in each parking place

2.TECHNICAL SYSTEM:

Smart parking systems use a combination of **sensors, data analytics and communication systems** to provide real-time information about parking availability.

3.SCOPE OF FUTURE SYSTEM:

- ☐ **Using the slot allocation method we can book our own cheapest parking slot**
- ☐ It is an efficient one for solving parking problems, which overcomes the traffic congestion also provides automated billing process.
- ☐ This work could be further extended as a fully automated system using multilayer parking method.

4.DESIGN OF PARKING FUNCTIONS:

- The parking lot system should be able to park cars, bikes, and handicapped

vehicles.

- The system should be able to calculate the cost of parking for each type of vehicle.

- The system should be able to keep track of the time a vehicle is parked.

5.RFID PARKING SYSTEM:

This is **Paid Car Parking using RFID**, In this project whenever any car enters in the parking site, it scans the RFID tag and park at parking slot, after few minutes or hours when car come at exit it, it scan the RFID tag and amount will be deducted from the tag according to parking time Components Used In The Project.

6.DIGITAL PARKING SYSTEM:

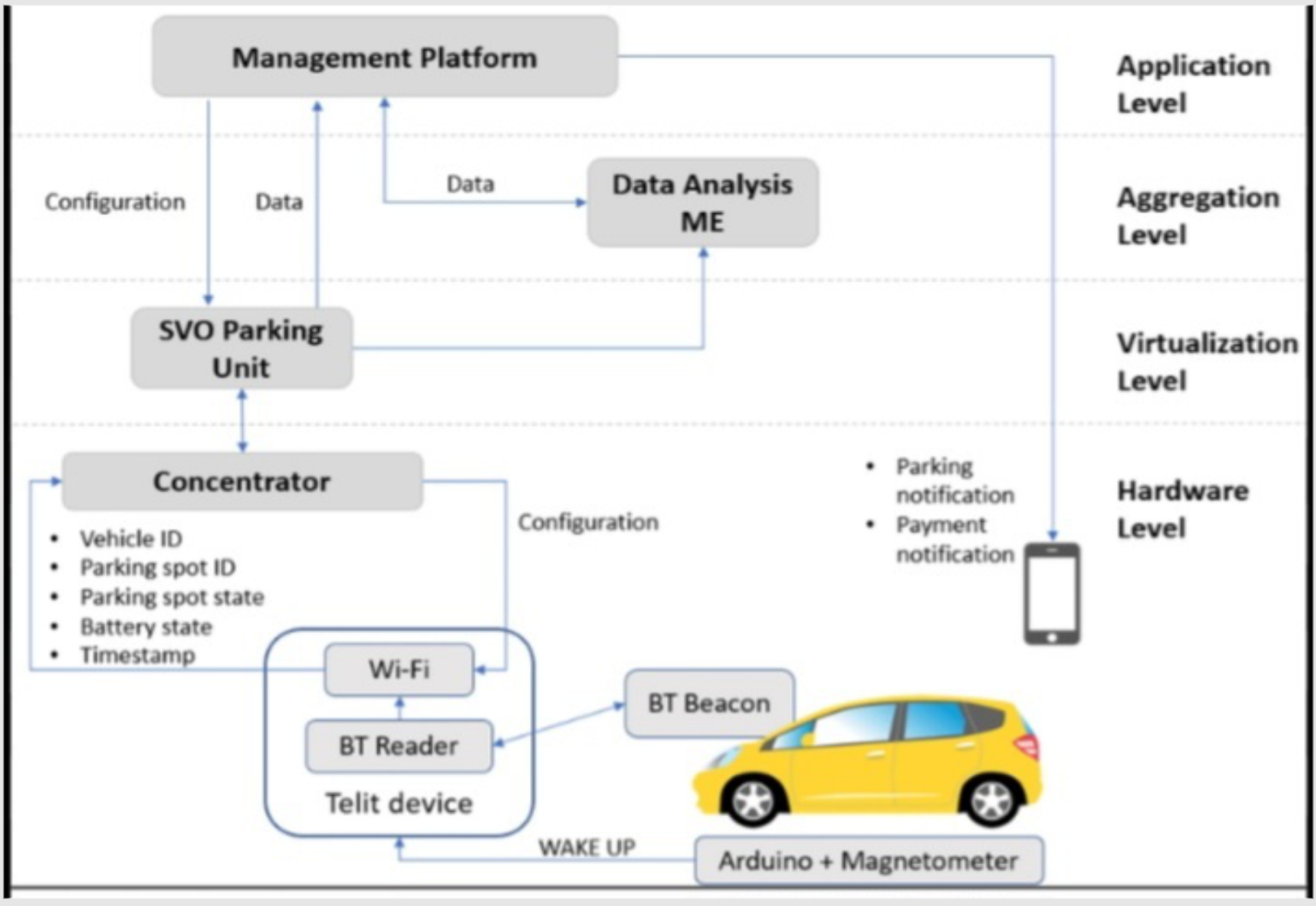
A digital parking system **relays real-time data to motorists to spot vacant parking lots at their preferred locations.**

7.PURPOSE OF MANAGEMENT SYSTEM:

- **Distant area**
- **Reducing traffic congestion**
- **Advanced parking space**

8.COMPONENTS OF SMART PARKING:

- **Smart cameras 📸**
- **Sensors and GPS system**
- **Control and access to the parking area and wi-Fi.**
- **control devices such as barriers, gates, ticket dispensers, license plate recognition systems, and payment kiosks.**
- Issue tickets or digital passes, and facilitate payment transactions.


Management Platform
Application Level
Configuration
Data
Data
Data Analysis ME
Aggregation Level
SVO Parking Unit
Virtualization Level
Concentrator
Hardware Level
Configuration
• Parking notification
• Payment notification
• Vehicle ID
• Parking spot ID
• Parking spot state
• Battery state
• Timestamp
Wi-Fi
BT Beacon
BT Reader
Telit device
WAKE UP
Arduino + Magnetometer

THANK YOU !!!