A Smart Parking Management System is an ideal solution to show unoccupied parking spaces and guide parkers to quickly park in no time. Typically installed at shopping malls, airports, hospitals, office buildings, residential communities, etc., SPMS is composed of an Ultrasonic Sensor, Bay LED Indicator, LED Display, Data Collector, Center Processor, Software & accessories.

Features

- User-friendly graphical interface.
- Real-time monitoring of parking space availability by facility, level, and single space.
- Reporting and statistics.
- Customer floor plan can be embedded in software.
- Status monitoring of ultrasonic sensors and electronic signs.
- System alerts for exceeding parking duration, vehicles in transit and more.
- Data sharing interface with city way finding systems.
What is Parking Management System?

Provides 4 optional ENTRY/EXIT Modes

Long Range RFID (LRR) for season parkers – No stopping

- Long Range RFID Tag
- Long Range RFID Reader
- Entry Station
- Barcode Ticket
- Proximity Card

Automatically dispenses Ticket or Card to hourly parkers

License Plate Recognition (LPR) for season parkers – No stopping

- License Plate Recognition
- Camera
- Entry Station
- Proximity Card

Avoids line ups
ENTRY / EXIT Station

It dispenses hourly parking barcode tickets to gain access to the parking lots. While season parkers get access via self-service by swiping their cards close to the reader, i.e. built-in the Entry/EXIT Station, or enter/leave without stopping if the window shield tag is read by the external long range reader. Typically the Entry/Exit Station is coupled with a Barrier Gate, Loop Detector, and optional devices, depending on the site requirements.

Intelligent Boom Barrier Gate

As one part of the parking management systems, a barrier gate stops unauthorized parkers from entering premises and gives access to authorized parkers.
How does it work

Season parkers with Long Range RFID (LRR)
ENTRY: Reader reads tag, barrier opens
EXIT: Reader reads tag, barrier opens, creates billing record.

Season parkers with License Plate Recognition (LPR)
ENTRY: LPR reads license plate, barrier opens, stores image for security
EXIT: LPR reads license plate, barrier opens, presents parking costs

Other Season parkers
ENTRY: Season parker swipe proximity card onto entry station, barrier open
EXIT: Season parkers swipe proximity card onto exit station, barrier open

Hourly parkers
ENTRY: Entry station automatically dispense ticket or card to hourly parkers
EXIT: Hourly parker comes to manual pay station, gives ticket or card to guard, guard scans ticket or card and collects cash, barrier open

Loop Detector
Connected to a ground induction coil with two relay outputs, a loop detector is used to detect the presence of vehicles.

Manual Pay Station - MPS
When leaving, hourly parkers drive to the Manual Pay Station and give the ticket to the guard, and the guard scans the ticket by a barcode scanner which is connected to the MPS and collects cash. The charging data will be displayed and stored in the cash register.
Manage remotely – Multiple campuses
PMS Diagram

ENTRY
- Entry Station – Unmanned
- Barrier
- Loop Detector
- Long Range RFID (Optional)
- LPR (Optional)
- Other optional devices

EXIT
- Exit Station – Unmanned
- Barrier
- Loop Detector
- Long Range RFID (Optional)
- LPR (Optional)
- Other optional devices
### Why use BioEnable’s PMS?

#### Know your customers
- Secured – Customers are known or pictures taken and stored
- Understand customer parking pattern

#### Supports flexible billing methods
**Multiple parking options:**
- Multiple parking lots – City wide, State wide
- Per use, Hourly, Daily, Monthly
- Special Bill Rates (includes no billing).
- Enable Rewards programs

### Robust
- Minimal moving parts creates a more robust system.

### Customer benefits
- **Convenient Hands free entry/exit**
  - No cash payment option
  - No ticket, no wait, no lineup
  - One bill for multiple parking lots

- **Easy Bill Management**
  - Online payments
  - Monitor/Print online bills
  - One bill multiple parking lots

### Eliminates shrinkage & Revenue loss
- All cash transactions are recorded
- Only paid customers can park

### Reduce Operational expenses
- Eliminates/Reduces staff costs – works automatically.
- No technical or support staff required
PARKING GUIDANCE SYSTEM

Pinpoint unoccupied parking space & lead drivers to park in no time

OVERVIEW

In cities, large scale car parks with hundred/thousands of spaces are getting more and more common with the increasing vehicle population. People now face a problem parking their vehicles. Listed below are some facts about parking:

- It’s very hard to find a parking space during busy hours;
- There are parking space available but you just can’t find them easily;
- There are no more parking space but you have to drive around to find out;
- Parking management has no idea about occupancy of their facilities;
- Traffic congestion & toxic emission;
- Impatient drivers...
Ultrasonic Sensor and Bay Indicator are installed at each and every parking space to monitor and indicate their occupancy status; when the sensor detects no car, the related indicator illuminates a Green color; when the sensor detects a car, the related indicator illuminates a Red color;

The Data Collector manages sensors in a group and collects information for calculation at the Centre Processor; the availability information is then released to a LED Display which will be installed at each and every entrance and intersection of the parking lot.

System Diagram

By telling drivers how many parking spaces are available before their entry to the parking lot and which direction to take in order to find one afterwards, we make parking a very simple and comfortable experience for them.

In a parking lot equipped with BioEnable PGS, drivers can find a space in the shortest time. Even if there’s only one last parking space available, they will be guided there fast and effortlessly.
System Components

ULTRASONICS SENSOR

Ultrasonic detection technology based units are installed right over the middle of the parking spaces (either on the ceiling or on the cable tray) to monitor the presence of vehicles and provide real-time information for the PMS system.

BAY INDICATOR

A high brightness LED indicator controlled by an Ultrasonic Sensor tells the occupancy status of a parking space through different color illumination. Normally red color indicates the space is being occupied; green, blue and yellow indicate space available.
LED DISPLAY

It is the first component greeting drivers at a car park equipped with BioEnable PGS. Outdoor LED Display at entrances tell how many spaces are available in each floor while Indoor LED Displays at corners and intersection tell which direction to take in order to find one.

DATA COLLECTOR & CENTRE PROCESSOR

Data Collector serves as a bridge connecting the Centre Processor to Ultrasonic Sensors and a LED Display. It picks up sensor information, transfers to Centre Processor, and also helps to release availability information from Centre Processor to LED Displays. Centre Processor is the core of the PGS system and deals with data processing, information storage and release.
Parking Occupancy Sensor

Parking occupancy sensor is an electronic device installed in parking space (indoor/outdoor) to automatically detect if the parking is occupied or not.

- Real-time occupancy status notification.
- Completely wireless communication.
- Compatible with Lora/WiFi/GSM networks.
- Indoor & Outdoor models available
- Weather proof casing.
- Low maintenance, long life battery.

Parking Space Management Portal

- Sensor directly communicates with the cloud based parking space management portal through wireless technology.
- Smart parking space management portal gives access to real time parking space status of the location through web interface.
- Along with the availability and location it also displays the type of vehicle parking can accommodated.
- Sensor also helps system identify vehicle’s parking duration.

Ceiling Mount Parking Occupancy Sensor

In-Ground Parking Occupancy Sensor
BioEnable’s Smart Parking Management System benefits drivers, parking manager as well as the society, the ROI mainly includes the following:

- Minimize driving time while looking for space
- Improve parking experience/customer satisfaction
- Maximize usage rate of parking space/profitability
- Improve public image of parking facility
- Reduce energy waste & toxic emission
- Reduce management costs

**ROI OF THE SYSTEM**

BioEnable’s Smart Parking Management System benefits drivers, parking manager as well as the society, the ROI mainly includes the following:

- Shows real time parking spaces
- Automated Alerts
- Summarized reports on daily/weekly/monthly basis
- Various Statistics reports
- User Friendly