SMART PARKING SYSTEM IN MALLS

TEAM MEMBERS

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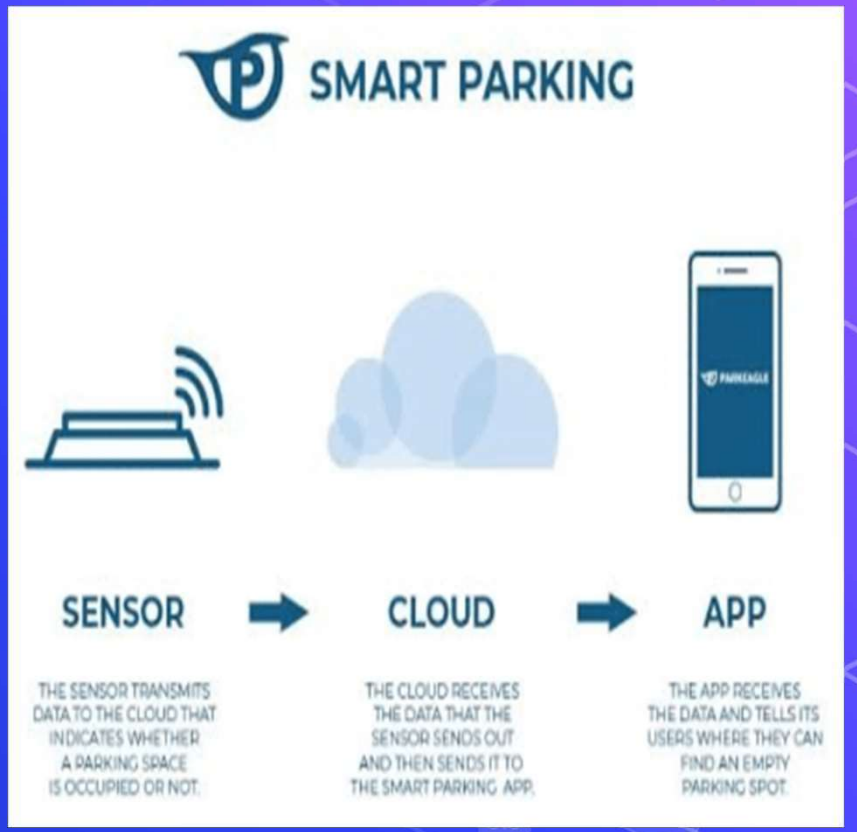
ABOUT PROJECT

Smart Parking makes use of sensing devices such as vehicle counting equipment, cameras, sensors installed in pavements, etc. to discover occupancy of the parking lot. The strong sensing systems are being built to examine and transfer the data to the database in real time. The system increases the accessibility of parking with the use of sensors. The sensors placed in the pavement of the selected parking spaces to recognise if parking slot is occupied or vacant.



Sensors communicates with gateway and that data will be push to the cloud. Sensors then immediately show the availability of parking slots. This can be viewed on the APP or the sensors placed on the parking slots so drives can easily identify the space.

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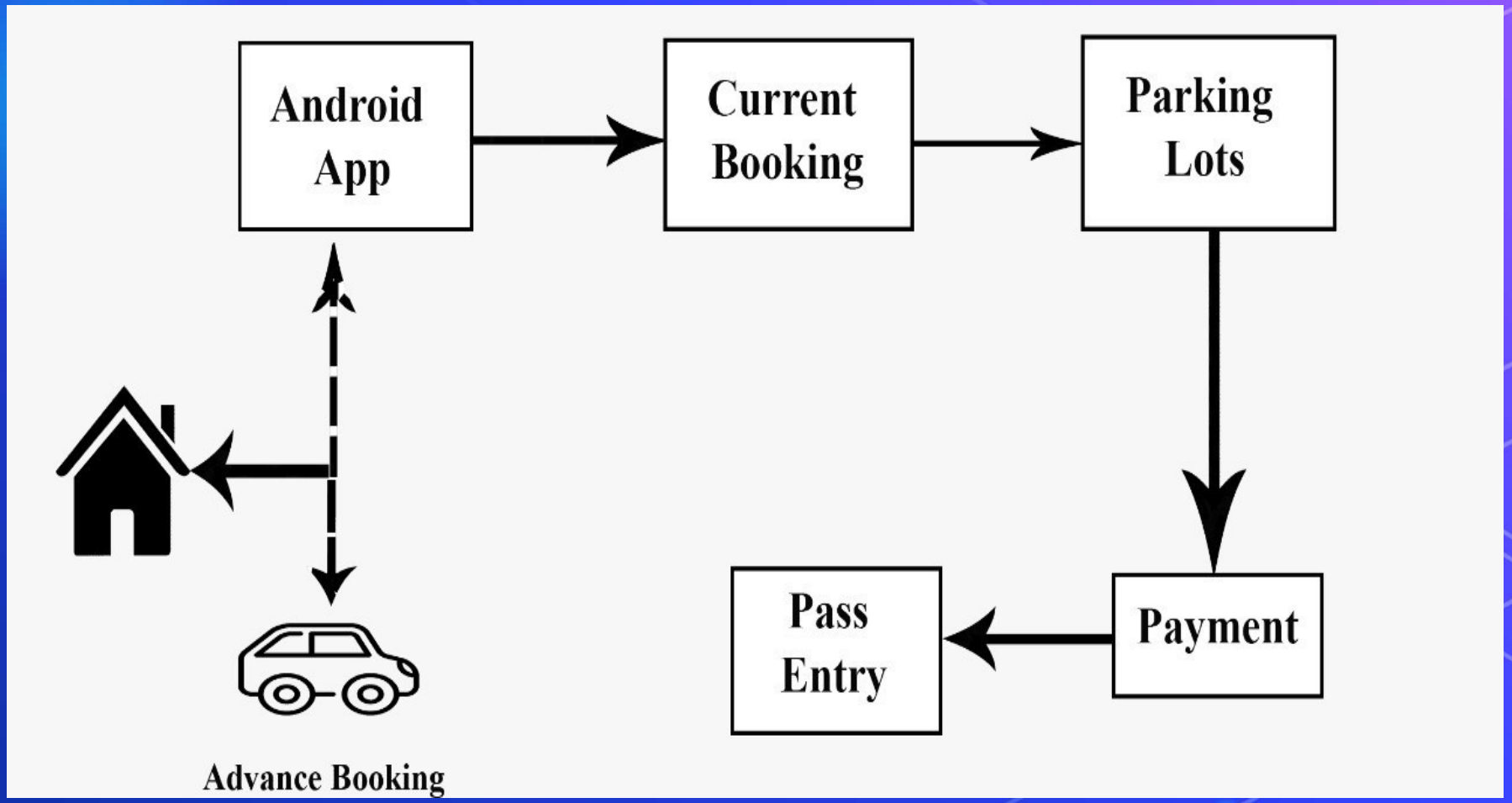
The data collected from the sensors will be send to the cloud storage and the user can acces the data by the web application.The user can select the parking space accordingly and then the parking space will be shown as booked . Sensors communicates with gateway and that data will be push to the cloud. Sensors then immediately show the availability of parking slots

- This can be viewed on the APP or the sensors placed on the parking slots so drives can easily identify the Smart Parking can be utilized in private parking lots, hospitals, hotels, shopping malls, public parking garages, offices, etc. to make the parking hassle free and time consuming. The intelligent parking system enables drivers to book the parking spots in advance and also get real-time accessibility of the parking spaces on their mobile devices. Some solutions will enclose a complete suite of services such as parking time notifications, online payments and even car searching functionalities for very huge lots.

WORKING

Smart parking systems can use various devices such as vehicle counting equipment, cameras, and sensors installed in malls and pavements to gather data about the occupancy of different parking lots. This data is then transmitted in real-time via the internet to a database where it’s aggregated and analyzed. The information can then be fed into a mobile app. Such an app then guides the driver with a GPS, providing directions to the nearest available parking space. By the duration of the time of parking ,the payment will be generated .


Android App
Current Booking
Parking Lots
Payment
Pass Entry
Advance Booking

BENEFITS

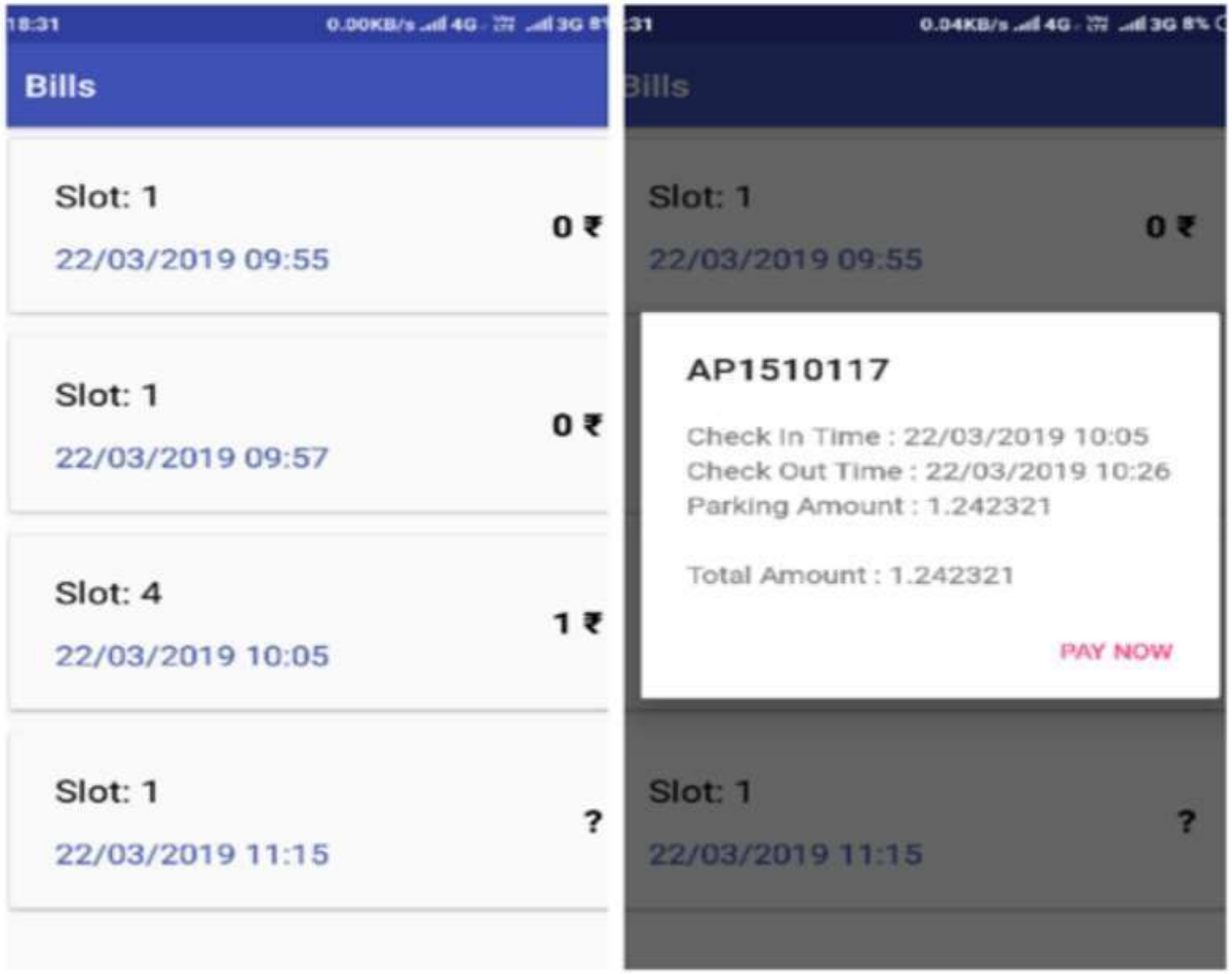
- Optimized parking – Users find the best spot available, saving time, resources, and effort. The parking lot fills up efficiently and space can be utilized properly by commercial and corporate entities.
- Reduced traffic – Traffic flow increases as fewer cars are required to drive around in search of an open parking space.
- Increased Safety – Parking lot employees and security guards contain real-time lot data that can help prevent parking violations and suspicious activity. License plate recognition cameras can gather pertinent footage. Also, decreased spot-searching traffic on the streets can reduce accidents caused by the distraction of searching for parking.
- Decreased Management Costs – More automation and less manual activity save on labor costs and resource exhaustion.

PAY BY PLATE PAYMENT FOR PARKING METHOD

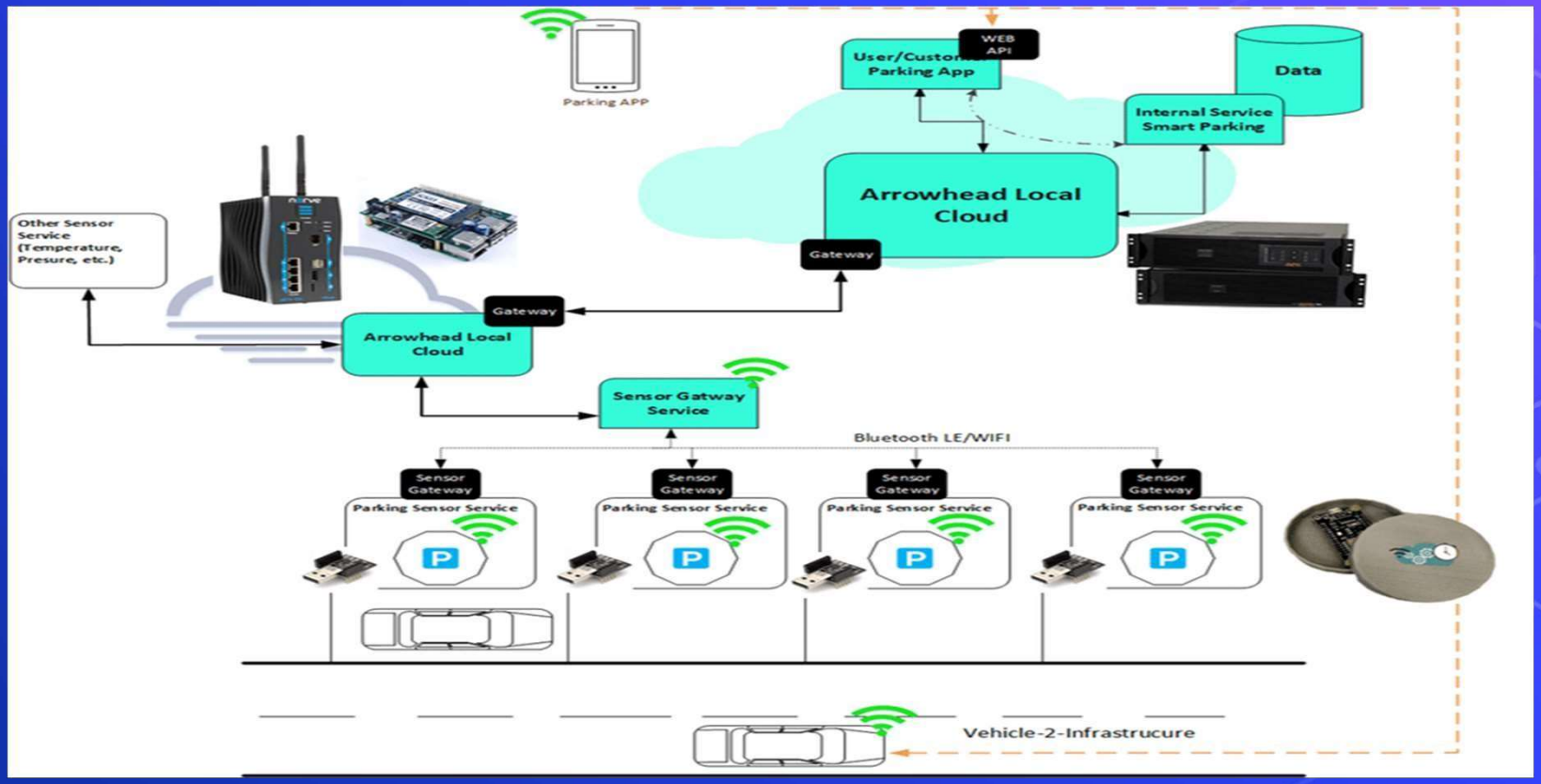
Forget about parking meters, pay by plate technology is the new way to manage parking payments in urban centers around the world. With all the function of parking meters and several cool features added on top, there are many reasons why pay by plate technology is gaining ground.

The technology allows drivers to pay for parking spaces by simply punching their license plate number into a parking kiosk, then paying by credit card or cash. They can reserve the space for as long as they want upfront and if they need to renew, they can do this remotely by app. No need to come running back to your vehicle just to renew your one-hour reservation.

If the vehicle owner has to move to a new space for any reason, they don't lose their payment. Enforcement too is much easier as officials can simply scan a plate, see if it is parked legally, and move on or print a ticket.


Bills
Slot: 1
22/03/2019 09:55
0 ₹
Slot: 1
22/03/2019 09:57
0 ₹
Slot: 4
22/03/2019 10:05
1 ₹
Slot: 1
22/03/2019 11:15
?
Bills
Slot: 1
22/03/2019 09:55
0 ₹
AP1510117
Check In Time : 22/03/2019 10:05
Check Out Time : 22/03/2019 10:26
Parking Amount : 1.242321
Total Amount : 1.242321
PAY NOW
Slot: 1
22/03/2019 11:15
?

ARCHITECTURE DIAGRAM



ARCHITECTURE

- A smart parking system is an architectural framework that comprises different ap-plication platforms integrated into embedded systems.
- For instance, reserved parking spaces allow users to request the application layer, wherein the request will immediately be processed through a network layer
- As a way of handling the user request, parking providers are expected to utilize the network layer to process the interaction with the transaction layer.

Finally, the transaction layer's consensus mechanism protocol and the individual parking provider update the distributed ledger.

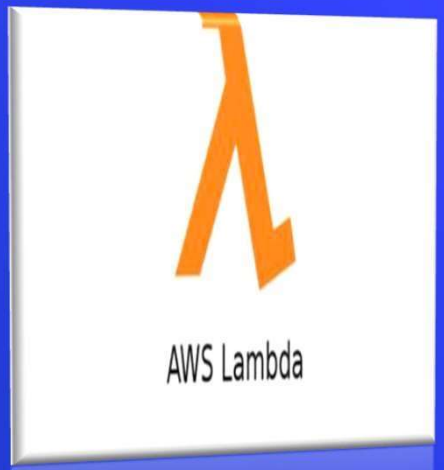
explained that the smart parking solution architecture is majorly represented by four components: the application layer, network layer, transaction layer ,and physical layer. An illustration of the layered architecture is provided ,which presents the instrumental aspects of the systems. The details of the smart parking subsystems are explained

SMART PARKING TECHNOLOGY

Various devices and processes form the structure of smart parking, acting as parking space detectors. On the one hand, the deployment of sensors and/or cameras, which record and process data and images to provide real-time traffic occupancy data for the area we are heading to.

An IoT cloud-based system, on the other hand, allows these devices to be connected and the data to be centralized. The data are then analyzed using big data in order to calculate the availability of on-street parking spaces or spaces in public and private parking facilities.

SERVICES



AMAZON-EC2

EC2 is a cloud platform provided by Amazon that offers secure, and resizable compute capacity. Its purpose is to enable easy access and usability to developers for web-scale cloud computing, while allowing for total control of your compute resources. It is esigned to make web-scale loud computing easier for developers.The systems cloud operation is hosted in AWS

AMAZON LAMBDA

Lambda is a compute service that lets you run code without provisioning or managing servers. Lambda runs your code on a high-availability compute infrastructure and performs all of the administration of the compute resources, including server and operating system maintenance, capacity provisioning and automatic scaling, and logging. With Lambda, you can run code for virtually any type of application or backend service.

l'he application íuns on AWS lol' and AWS Lambda and shows a díiveí fíee spaces in gíeen, occupied spaces in íed, and sensoí malfunctions as yellow. l'he amount of paíking spaces in a paíking lot deteímines the softwaíe and haídwaíe íequiíements foí lol' configuíation and system aíchitectuíe

AMAZON S3

Amazon Simple Storage Service (Amazon S3) is an object storage service that offers industry-leading scalability, data availability, security, and performance. Customers of all sizes and industries can use Amazon S3 to store and protect any amount of data for a range of use cases, such as data lakes, websites, mobile applications, backup and restore, archive, enterprise applications, IoT devices, and big data analytics. Amazon S3 provides management features so that you can optimize, organize, and configure

CONCLUSION

The system benefits of smart parking go well beyond avoiding the needless circling of mall . It also enables malls to develop fully integrated multimodel intelligent transportation systems that do not rely on cars in the first place.

In future, the system can be extended which is not only specific to a private parking like Malls, Company parking, etc. but also can be implemented over various multiple platforms such as public parking also extending the feature by giving parking information based on cost in real time. This will make the management of the parking spaces more efficient, by purging the need of human labour.

Thanks!