IOT Based Smart Car Parking System for Smart Cities

Problem Definition:

* Parking management influences drivers search time and cost for parking spaces.
* It may also cause traffic congestion.
* Finding a parking space in most metropolitan areas especially during the rush hours is difficult for drivers.
* Difficulty arises from not knowing where the available spaces may be at that time traffic congestion may occur.

Design Thinking:

Smart Parking System (SPS) :

SPS refers to parking management system that combines cloud computing technology, database, and mobile devices in parking systems. The system created is not just an operational system for managing parking lots, but also storing information and accessing up-to-date information on the condition of parking lots.The procurement of an automated parking lot operational system aims to provide fast, safe, monitored and transparent parking services.

Internet of Things (IoT):

The IoT (Internet of Things) is a computational concept that describes every physical objects can be connected to the internet and can identify itself between other devices. capabilities such as data sharing, remote control, etc., including objects in the real world. Examples are machineries, sensors, electronics, collections, any equipment, including people that are all connected to local and global networks through embedded sensors and are always active.

Result and Discussion :

Based on what has been discussed in introduction and literature review, the problem of parking system at malls can be solved through implementation of smart parking system that use IoT. SPS offers strategy and system to optimizing the parking lot for mall management and ease the parking process for customers through booking system, paperless ticket, cashless payments and automated guided parking.Booking system can be alternative to valet and cost more cheaper because it doesn’t use people.

The Architecture :

In this section will be discuss about the architecture of SPS. The parking system that we propose will make each system link one to another. The system that will be available is in-ground vehicle detection sensor. The parking sensor in the parking system use infrared. The sensor will often communicate with the signal light notification which is located above each parking lot using short range wireless.

Implementation:

The SPS implementation uses integrated technology such as mobile, QR scanner, In-ground sensors, notification sensors, notification signal and parking monitor.

The SPS implementation will benefit customers, parking staff and shopping mall management.The framework SPS enables the car users can book the parking lot available online through smart device

Conclusion :

The article proposes the smart parking system that combined with IoT that enables to solve the common problems faced by building managements.Although still in early stage in pilot project, the idea of article has been applied in several malls in South Jakarta. The implementation of SPS is expected to help customers, parking staff and shopping mall management.