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Smart parking guidance system using 360o camera and haar-cascade classifier on IoT system (Article) (Open Access)

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Abstract

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Nowadays, smart parking guidance system is a crucial research for people's convenience. The main objective of this research is to develop and analyze on a smart parking guidance system where current available system was compared to this new proposed system. Limited parking space has become serious issue since the number of Malaysia's populations who are using car keep increasing. Some of the big companies, shopping malls and other public facilities already deployed a smart parking system on their building. However, there are still a lot of buildings that do not own it because the system required a lot of investment, where the huge parking areas need higher cost to install sensors on each parking lot available. The proposed smart parking guidance system in this research was depending on a 360° camera that was modified on raspberry pi camera module and 360o lens and Haar-Cascade classifier. The image and video processing was by Open CV and python program to detect the available parking space and cloud firebase was used to update data where users can access the parking space availability by android mobile phone specifically at a closed parking space. A single 360°camera was replaced several sensors and camera which was implemented on traditional smart parking system. An analysis was done on the performance of the system where it can detect the parking availability with 99.74% accuracy and which is far better than conventional system including reliability and cost for the parking space guidance system. © BEIESP.

SciVal Topic Prominence ⓘ

Topic: Parking | Traffic congestion | Parking supply

Prominence percentile: 96.391 ⓘ

Author keywords

360-degree camera Android app. Cloud Computing Internet of Things Raspberry Pi 3 model B Smart Parking

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