UNIVERSITI TEKNOLOGI MARA

SHOP OCCUPANCY MONITORING: AN IOT-BASED MOBILE APPLICATION FOR REAL TIME OCCUPANCY COUNTING

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ABSTRACT

The COVID-19 epidemic has had a significant impact on how people purchase and how retailers operate around the world. With the implementation of new social distancing policies, store owners must do everything possible to ensure the safety of their personnel and customers. Therefore, to enable stores to open with the new norms Shop Occupancy Monitoring system can ensure stores comply with occupancy restrictions and allow the necessary space for customers for social distance. The system will detect the incoming and outgoing shoppers, then compare the maximum occupant number with the current occupancy to make sure shoppers comply with the maximum occupancy set up for the shop. If the number of the current occupancy exceeds the maximum numbers set up, the buzzer will trigger to alert the shoppers that the current occupancy has already reached the limit. This system is developed via IoT with NodeMCU V3 ESP8266 microcontroller, infrared sensor, buzzer, and mobile application by adapting the Mobile Application Development Life Cycle (MADLC) methodology as a guideline in the project development. The project provides an application that allows for real-time occupancy counting, informing shoppers and retailers when capacity limits are reached, touchless entering, and user friendly. This Shop Occupancy Monitoring system can also be used by businesses who want to keep track of how many people are in their buildings or facilities.

Keywords: shop occupancy monitoring, Internet of Thing, infrared sensor, NodeMCU, ESP8266, Mobile Application Development Life Cycle, Firebase

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