

ABSTRACT

Visitor detection monitoring at tourist sites helps analyze the amount of sensor data and manual data. It can help tourist site managers to improve resource management, improve visitor safety. Traditional visitor counting methods, such as manual counting and infrared sensors, have several limitations, are time consuming, and have low accuracy. PIR sensor-based visitor detectors offer a more cost-effective, scalable, and accurate solution. PIR sensors can detect human movement using PIR waves. The detected data can then be processed to count the number of visitors. This study investigates the development and implementation of a PIR sensor-based visitor detection system at tourist sites using the IoT and Arduino platforms. This system aims to provide real-time data on visitor flow and occupancy rates. This system uses PIR sensors strategically placed at the entrance points of tourist sites. Evaluate and select the most appropriate PIR sensor based on cost, accuracy, and range. Optimize sensor placement for comprehensive coverage at the entrance point. These sensors transmit and receive PIR waves, thereby detecting movement and counting visitor flow. Data collected by the sensors is wirelessly transmitted to the IoT and Arduino platforms for real-time processing and visualization. This research has the potential to provide significant benefits for tourist sites. This system can help tourist site managers to improve resource management, improve visitor safety. The detection delay time for the entry sensor ranges from 3.42 to 4.11 seconds, and for the exit sensor between 5.52 to 7.25 seconds. The data collected can be used for resource management and visitor safety. With a maximum distance that can be detected by the sensor 120cm with a voltage of 3.23 volts. In the entry sensor and exit sensor testing there were 20 tests and both sensors were accurate in detecting it.

Keywords: PIR sensor, visitor detector, Arduino, IoT, tourist sites.