

IoT Based Motion Alert System using Blynk Application to Prevent Fatal Accident of Falling from Height

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ABSTRACT

In the last decade, there have been many cases of children falling from high places such as balconies and stairs in our country. A warning system for fatal accidents of children falling from heights is important, and the motion detection system to prevent falls is very convenient for young people in their daily life. The IoT-based motion alarm system with Blynk application is designed to monitor the children when they step into the dangerous angle of the house, and a warning message will be displayed on the phone. The objectives of this research are to develop a prototype child motion alarm system using the PIR motion sensor and NodeMCU with the Blynk application, and to evaluate the performance of the prototype through functional testing, network testing, and user acceptance testing. The sensor was tested 3 times in conjunction with the Blynk application to verify functionality. Meanwhile, some scenarios with and without obstacle were created to ensure the network performance. When the distance increase more than 4m, the response time are still in an acceptable range to notify parent. In summary, this research successfully developed a prototype motion detection sensor using NodeMCU as the microcontroller and Blynk as the application to receive signal and send alert notification to smartphone. For the future works, this research system can be integrated with a camera or CCTV to make it easier to monitor the children from smartphone that are connected with the prototype. Other than that, other researchers could try to add some hardware that can automatically defence children falling from height.

Keywords: Motion detection, Children, IoT, PIR motion sensor, Blynk