

A Mobile IoT-based Elderly Monitoring System for Senior Safety

ABSTRACT

Traditional elderly monitoring systems may misdiagnose and treat senior citizens due to inaccurate results, resulting in higher care costs and poorer health outcomes. Thus, the Internet of Things (IoT) was introduced to provide accurate, real-time monitoring data to improve overall performance. The IoT health system connects devices wirelessly to collect and analyze health data, monitor vital signs and physical activity, and provide real-time insights to improve health management. This paper aims to monitor real-time conditions as well as ensure the safety of senior citizens by developing a low-cost wearable prototype device to measure heart pulses, detect falls, and determine their actual location in an indoor space. The data is uploaded to IoT platforms like Blynk, Firebase, and Google Assistant, providing frequent updates on the elderly's health status and conditions and sending emergency messages, if necessary, to an Android application. A home control system is also developed to control the home appliances using mobile phones or voice control. A demonstration has been conducted to showcase the operation and functionality of the prototype. The proposed system has the capability to simplify the daily routines of the elderly while also granting caregivers greater control over their health and well-being.