# IoT Based Heart Rate Emergency Alert System for Persons with Disabilities

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## ABSTRACT

Nowadays, the sexual assault against Persons with Disabilities (PWD) are increasing and the violent victimization rate of PWD in was nearly four times the rate for persons without disabilities in 2019. PWD are various and heterogeneous. For instance, a person with dementia, autism, blind, deaf, mute, and has amputated legs or hands. Disability is a complex and dynamic also considered as a part of human condition, permanently or temporarily. In global application, there are several systems that offer never-ending protection and heart monitoring services within the market. Heart rate is the most main signal in living beings as the heart is the crucial organ and specifically, rapid heartbeat will occur during anxious and flight or fight situation. However, there is lack implementation of essential function which is the real-time function to inform someone if an abnormal heart rate detected. The objectives of this research are to develop a system that can alert the guardian to the emergency of PWD by detecting the heart rate and evaluate the functionality, network, and usability of the alert system. The prototype is tested through a few different scenarios to test its network, and functionality. For network testing, the prototype is tested three times through different location and different types of telecommunications to record the response time. For functionality testing, the prototype is tested for its heart reading during different activities and existence of disturbance. The recommendations for future studies are to develop the prototype into a wearable device such as watch, to make it easier to bring everywhere. Furthermore, the SMS notification should be changed to calls for future work to ensure fast alert from the guardian when emergency happens.

**Keywords:** Internet of Things, Heart Rate Emergency Alert System, SMS, Persons with Disabilities, SIM900A GSM, GY-NEO6MV2 GPS