Development of a Mobile Application with a Wearable Device for the Detection and Monitoring of Heartbeat Irregularities

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In an electrocardiogram (ECG) the electrodes on the different parts of the body detect electrical impulses coming from different directions within the heart (Henderson, 2017). Hence, an ECG can help detect any irregularities in the heart rhythm. It is the purpose of this project, to use a Bluetooth device and a phone application to search for ways to continuously monitor heartbeat irregularities. There are wearable devices in the market that can detect heartbeat rhythm, but most of them do not monitor it uninterruptedly, like the one created in this research. The mobile application was programed, and the wearable device was designed and connected via Bluetooth to the phone application. Later, the collected data was compared with a smartwatch able to read the number of contractions of the heart per minute (BPM). The application was able to establish a connection with the wearable device designed, show an ECG graph, measure the BPM, and identify if an irregularity occurred. According to a recent study, one in four adult Americans over the age of 40 could develop an irregular heartbeat. These cardiac arrhythmias are extremely dangerous and require immediate treatment (Axe, 2017). With the device created, people suffering from cardiovascular diseases could be alerted of heart irregularities faster and seek medical help before heart complications occur. The device designed through this research is accessible and easier to use than current devices in the market.