ABSTRACT

IoT devices have gained significant place in the healthcare domain for their potential in continuous health monitoring. In our work, we propose a IoT device equipped with SpO2 (Saturation of Peripheral Oxygen) and temperature sensors to monitor vital signs such as pulse rate, heart rate and oxygen levels. Based on the advancements in deep learning, specifically Gated Recurrent Units (GRUs), we present a methodology for the classification of heart disease into normal and abnormal categories based on the collected physiological data. The IoT device uses Arduino as the controller and measures SpO2 levels, temperature, and pulse rate from the user. The gathered data are preprocessed and fed into a GRU-based neural network architecture. The GRU model is trained on a dataset comprising samples of individuals diagnosed with normal heart function and those with various heart abnormalities. Through this training process, the model learns to extract meaningful patterns with the help of physiological signals. Our experimental results demonstrate classification accuracy in distinguishing between normal and abnormal heart conditions. Moreover, the use of GRUs enables the model to capture long-term dependencies inherent in physiological time series data, enhancing the robustness and effectiveness of the classification task. Overall, this research contributes to the development of IoT based healthcare technologies for early detection and monitoring of cardiovascular diseases. The integration of SpO2 and temperature sensors with GRU-based deep learning models offers an efficient approach for heart disease classification, potentially empowering individuals to proactively manage their cardiovascular health.