

AN ARTIFICIAL NEURAL NETWORK MODEL FOR THE PREDICTION OF AN INDIVIDUAL'S SHORT TERM BLOOD PRESSURE

ABSTRACT

Hypertension is a serious problem across the globe because of its mortality rate per year. High blood pressure (BP) has no warning signs nor symptoms, and many people do not know they have it. Measuring the BP level is the only way to know about a person's BP status. Many solutions geared toward managing hypertension have been successful, but the condition still persists across the globe. Though there are treatments to help those with hypertension manage the condition, there is a lack of a suitable solution to predict a person's BP based on previous readings and planned future activities. This study aims to take a different approach to this problem through the use of artificial intelligence (AI), machine learning (ML) in particular. This study intends to use a smartwatch, to collect BP and an ML system that will predict future fluctuations of an individual's BP using their future calendar events. This study is to be done in Uasin-Gishu County. The researcher will employ design science and experimental methods for the study. Rapid Application Development will be used in order to design the smartphone application that will capture the data from the individual. The implementation of the ML model will be done using the Iterative and Incremental Development Model. The Holdout method's, test dataset will be used along with Root Mean Square Error (RMSE) and Mean Absolute Error (MAE), to evaluate the prototype based on the predefined system objectives. This study will help individuals to better monitor and control their BP thus reducing their chances of getting hypertension. It will also aid in bringing awareness to those who are unaware that they have hypertension, in order for them to take necessary action to mitigate the condition.

Keywords: blood pressure, hypertension, artificial intelligence, machine learning, artificial neural networks, prediction

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