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| **Title:** | Heart Disease Detection by Using Machine Learning Algorithms and a Real-Time Cardiovascular Health Monitoring System | | |
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| **Abstract:** |  |
| Cardiovascular diseases are the most common cause of death worldwide over the last few decades in the developed as well as underdeveloped and developing countries. Early detection of cardiac diseases and continuous supervision of clinicians can reduce the mortality rate. However, accurate detection of heart diseases in all cases and consultation of a patient for 24 hours by a doctor is not available since it requires more sapience, time and expertise. In this study, a tentative design of a cloud-based heart disease prediction system had been proposed to detect impending heart disease using Machine learning techniques. For the accurate detection of the heart disease, an efficient machine learning technique should be used which had been derived from a distinctive analysis among several machine learning algorithms in a Java Based Open Access Data Mining Platform, WEKA. The proposed algorithm was validated using two widely used open-access database, where 10-fold cross-validation is applied in order to analyze the performance of heart disease detection. An accuracy level of 97.53% accuracy was found from the SVM algorithm along with sensitivity and specificity of 97.50% and 94.94%respectively. Moreover, to monitor the heart disease patient round-the-clock by his/her caretaker/doctor, a real-time patient monitoring system was developed and presented using Arduino, capable of sensing some real-time parameters such as body temperature, blood pressure, humidity, heartbeat. The developed system can transmit the recorded data to a central server which are updated every 10 seconds. As a result, the doctors can visualize the patient’s real-time sensor data by using the application and start live video streaming if instant medication is required. Another important feature of the proposed system was that as soon as any real-time parameter of the patient exceeds the threshold, the prescribed doctor is notified at once through GSM technology. | |