**Analysis of Activity Recognition Data collection using Smart-Watch and Personalised Recommendation by Applying Machine Learning Algorithm**

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***Abstract:***

***In this smart emerging world, modern day equipment, like wearable devices, not only provides functionality or advancements in lifestyles but also becoming a trending fashion choice. Most of the devices which are wearable provides basic functionalities like display time or date. But implementation of more smart features like displaying message, phone call or even medical activity recognition can lead the productivity in dense and holds a potential to create a product demanded by huge number of customers. Smart wearable devices connected to internet approaches the methodology and required application and implementation of secure IoT environment and cloud infrastructure. Compared to other internet connected devices wearable devices like smart watches are designed to be capable of monitoring activity for 24 hours a day. Mostly they are designed as durable and water resistance with addition of appropriate sensors for required functionalities and detection. In this paper we are proposing a model for identifying requirements of activity and inactivity recognition by implementing on a secure and smartly designed cloud infrastructure. Here we are also defining a new measurement of heart-rate data applying various machine learning methods.***

***Key Words:*** *IoT, Smart-Wearable-Devices, Cloud, Machine Learning, Web Application*

**1. Introduction**

21st century wearable devices like smart watches not only offer visual display of time and date, but also gives us several other feature rich functionalities which helps to create advancement in day to day human life. Most recognised feature for smart watch is health monitoring. Wearable technology introduced the methodology of continuous monitoring of medical and personal data. This not only gives us productivity and efficiency, but also provide us a better way to live our life- A smart life.

Adding sensors to wearable device enhance the functionalities for collecting data about user activity. By collecting and storing the data into a database or secure storage we can provide a platform of innovation for third party vendors. There is various availability of application of accelerometer and gyroscope application to recognise activity of a particular user. Activity and inactivity recognition of individuals have become a current development scenario for wearable devices. But we can do lot of enhancements and predictive approach by applying machine learning to those data set.

In this paper we will discuss about possible futuristic implementation of personalised activity recommendation based on the data collected through smart watch. Besides we will present the scenario of collecting heart rate data from test cases and predicting upcoming health issues by applying available machine learning model into it. Which does not only add valuable medical functionality, but also gives a boost to the existing scenario and an upgraded technical application.

**2. Related Work**