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Context Aware Smart Environment for the Internet of Things

Bachelor of Science in Information Technology

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Abstract

The concept of the Smart Environment is based on Internet of things (IoT) infrastructure. The IoT infrastructure is composed of the smart objects. These are the objects that possess the ability to extract information from the environment where they are deployed, they might share this information with other smart objects or sends this directly on the designated server.
Smart environment is composed of hundreds and thousands of smart objects each having different nature of job, consequently their data is also heterogenous in nature. These smart objects generates a massive amount of data referred as “BIG DATA”. This heterogenous nature of data calls for an automated system in place to classify this data in real time into their respective classes so that the decision making can be performed in much improved way.
To address these issues this project presents the concept of an intelligent system using machine learning algorithm. So, for the classification of this data we have used “Support Vector Machine” which is a supervised machine learning algorithm. The algorithm works in a way that its first trained on the basis of training set and after the training stage the real time data is provided to the SVM for the purpose of classification. This classified data plays a vital role in performing various tasks and actions and is also stored in the database. A web application is also being developed which serves as a main dashboard where all the real time and historical data can be seen.

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Acronyms and Abbreviations

SVM	Support Vector Machine
PIR	Passive Infrared Sensor
DHT11	Temperature Sensor
MQ2	Gas Sensor
SQL	Structured Query Language
SIoT	Social Internet of Things