Modeling Internet of Things Data
for Knowledge Discovery

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Abstract. Internet of Things (IoT) is a budding field. It finds its base in the science of electronic equipments, communication technologies and computing algorithms. It is the network of physical devices, vehicles, home appliances and other items embedded with electronics, software, sensors, actuators, and connectivity which enable these objects to connect and exchange data. All things on the IoT may develop a data overflow that encompasses various types of relevant information. Data can be generated as a result of communication between humans, between human and systems, and between systems themselves. This data can be used to improve the services offered by IoT and thus it becomes important to work on the IoT generated data. This paper presents a model for implementing an IoT system, collecting data from it and performing data analytics on the collected data with the intent of deducing knowledge from this data. This paper also proposes some new areas where IoT can be put to use, thus bringing in sight a ground-breaking view of what IoT can and will do. This, in turn, will change the way we live, work and communicate. The hurdles that may come in the way of implementing IoT have also been discussed in this paper. Finally, the methods of analyzing IoT data have also been discussed with focus on frequent pattern mining. Implementation and results of our work have been shown vividly.

Keywords: Internet of Things · Knowledge discovery of data · IoT reference model · IoT data

1 Introduction

Internet of Things (IoT) brings together many of the latest technologies. When these technologies are converged they have a huge impact on our lives. IoT is making thinks smart or digital which enable a new level of services and capabilities. The first revolution of technology was when computer and internet came into being and now IoT will be the largest revolution in the field of technology. IoT contains trillions of nodes representing various objects from small ubiquitous sensor devices and hand helds to large web servers and supercomputer clusters (Poslad 2009).