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| **PRAVEEN G** | **1GA15CS109** |

**ABSTRACT**

Internet of Things (IoT) is a computing

process, where each physical object is equipped with

sensors, microcontrollers and transceivers for empowering

communication and is built with suitable protocol stacks which

help them interacting with each other and communicating

with the users. In IoT based healthcare, diverse distributed

devices aggregate, analyse and communicate real time medical

information to the cloud, thus making it possible to collect,

store and analyse the large amount of data in several new

forms and activate context based alarms. This novel information

acquisition paradigm allows continuous and ubiquitous medical

information access from any connected device over the Internet.

As each one of the devices used in IoT are limited in battery

power, it is optimal to minimise the power consumption to

enhance the life of the healthcare system. This work explains

the implementation of an IoT based In-hospital healthcare

system using ZigBee mesh protocol. The healthcare system

implementation can periodically monitor the physiological

parameters of the In-hospital patients. Thus, IoT empowered

devices simultaneously enhance the quality of care with regular

monitoring and reduce the cost of care and actively engage in

data collection and analysis of the same.

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The traditional low-power embedded processors such as Atom and ARM are entering into the high-performance server market. At the same time, big data analytics applications are emerging and dramatically changing the landscape of data center workloads. Emerging big data applications require a signiﬁcant amount of server computational power. However, the rapid growth in the data yields challenges to process them efﬁciently using current high-performance server architectures. Furthermore, physical design constraints, such as power and density have become the dominant limiting factor for scaling out servers. Numerous big data applications rely on using Hadoop MapReduce framework to perform their analysis on large-scale datasets. Since Hadoop conﬁguration parameters as well as system parameters directly affect the MapReduce job performance and energy-efﬁciency, joint application, system, and architecture level parameters tuning is vital to maximize the energy efﬁciency for Hadoop-based applications. In this work, through methodical investigation of performance and power measurements, we demonstrate how the interplay among various Hadoop conﬁguration parameters, as well as system and architecture level parameters affect not only the performance but also the energy-efﬁciency across various big data applications. Our results identify trends to guide scheduling decision and key insights to help improving Hadoop MapReduce applications performance, power, and energy-efﬁciency on micro servers.

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