

## Guest Editorial Preface

# Special Issue on Information Management in Internet of Things

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Increasing miniaturization of computing technologies and rapid advancements in communication technologies have made the heterogeneous objects of our daily lives invisibly interweave with sensors, actuators, and other computational elements, while keeping a continuous network connection. The continuous connectivity of these heterogeneous smart objects enables them to communicate with each other and with the users of Internet of Things (IoT) technologies. These continuously connected data, generating heterogeneous objects, produce a huge amount of data that needs to be processed, distributed, and examined under consideration of the application objectives. Processing such unstructured and semi-structured data, generated by heterogeneous sources with different contextual and conceptual representations, is a challenging task. By leveraging the synergy among the collected data, information management techniques can minimize the amount of data traffic, filter irrelevant data, and make predictions and inferences using the collected data in the IoT environment. Information management helps in combining the information into a new set of information while minimizing uncertainty.

Researchers are leveraging information management techniques for enabling the IoT smart objects to make the reliable decisions. The exploitation of information management techniques in IoT will open new dimensions for designing the reliable and autonomous systems that can operate without the need for human interactions. Hence, there is a need to investigate the potential opportunities of applying information management in the designs of protocols and algorithms of IoT. Such investigation will open up a totally new spectrum of functionalities with unprecedented benefits for IoT-based environments. This special issue invites new and unpublished work in the domain of information management in an IoT context. More specifically, this special issue will focus on recent research efforts in applying information management in IoT.

### IN THIS ISSUE

In this regard, the first article presents two IoT scenarios to detect anomalies using multivariate outlier detection methods, uniquely using RFID data. The paper empirically evaluates proposed methods by reproducing a RFID-enabled store, and two proposed scenarios.

The second article discusses social and business ideas to innovators so they can improve business models using the IOT. This paper examines the business models and proposed existing frameworks along with the economic energy of IOT according to the successful projects in this scope, and offers the general logic for services or products that can be used as the basis of specific elements and patterns of business models of IOT.

The third article is about how Internet of things (IoT) based system provides the user with different conditions of the road and a smart parking solution.

The last article provides a demonstration of the underpinning working methodology of the proposed model by examining a real case that is based on the decision process Internet users employ during their online search for information.

## CONCLUSION

Smart objects now provide vast amounts of storage space due to the recent advances in flash memory technology. IoT applications rely on this storage space in order to improve system performance. It is therefore becoming more important to not only secure communication but to also protect sensitive data while it is stored on smart objects. The actual use and possible privacy implications of the IoT data remain largely unaddressed. In order to maintain a minimum level of privacy, industry standards must be created which limit the use and collection of data relating to sensible information such as health and religion, etc.

The technology prospers in small scales. In this time, the highest focus of the companies in this field seems to be on product-based business models which have added the connection option to their products and offered services using data collected by these products.

In recent years, there have been wide uses of video cameras for traffic observation classifications, since it can be considered as a rich basis of information about traffic stream. The proposed system is useful to detect the vehicles that pass through the signals. The system proposed will provide a two way interface to update and access the data regarding any possible inconsistency on the road and smart vehicular parking. This will be a vital tool to avoid accidents in the place where the risk of accident or injury is substantial. Inconsistencies are more dangerous in low visibility conditions, like at night, or when there is fog, rain or snow.

Finally, the focus could be on producing an overall competency map of the Internet marketing channels and this could then be used to ensure that resources are allocated to different channels in an efficient manner. Such a map would undoubtedly be of significant value to practitioners and analysts. However, in order to achieve this, it would be essential to develop a robust method that could adequately address the existing selection problem and evaluate a significantly larger alternative. Further, considering the fact that technology is changing rapidly so the considered factors try to capture the variation in preferences of consumers to the maximum extent which can be validated through sensitivity analysis and cross-fold validation technique. Moreover, the criteria under study can be regulated by industry association and regulatory body for maintaining stability in results.

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