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Social Internet of Things

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ABSTRACT

The main objectives of social internet of things is to separate the two levels of people and things to allow objects to have their own social network, to allow humans to impose rules to protect their privacy and only access the result of autonomous inter-object interactions occurring on the object's social network. Smart object will not make a difference, but social objects will make it. The main contribution is to identify the appropriate policies for the establishment and the management of social relationship between objects. To describe a possible architecture for the internet of things that includes the functionalities to integrate things into social network.

Keywords: Internet of things, Social network, Social communities of smart object, Gateways and objects, Benefits and examples of social internet of things

1. INTRODUCTION

The Internet of Things integrates a large number of technologies and envisions a variety of things or objects around us that, through unique addressing schemes and standard communication protocols, are able to interact with each other and cooperate with their neighbours to reach common goals. Recently the idea that the convergence of the Internet of Things and the Social Networks worlds is possible, or even advisable, is gaining momentum.

This is due to the growing awareness that a Social Internet of Things would carry many desirable implications into a future world populated by intelligent objects permeating the everyday life of human beings. In fact, applying the social networking principles to the Internet

of things can lead to several advantages. The Social Internet of things structure can be shaped as required to guarantee the network navigability, so as that the discovery of objects and services is performed effectively and the scalability is guaranteed like in the human social networks. A level of trustworthiness can be established for leveraging the degree of interaction among things that are friends and the models designed to study the social networks can be reused to address internet of things.

2. SOCIAL INTERNET OF THINGS

Internet of things will change everything. Everyday object, data, systems and people will be connected to create an intelligent network. The social network of things is the interconnections of hybrid services, objects and people where ordinary users will eventually have the ability to create their own personalized social services easily and conveniently through use of the network. The interconnected hybrid network will lay the foundation for entirely new approaches to creating meaningful online and offline social experiences. The social internet of things allows people to be more social in a safe and secure manner. It allows companies that specialize in specific products to evolve into data driven digital organisations. Companies can now develop in meaningful business in entirely different industries because of the connections that exists between their products and their customers.

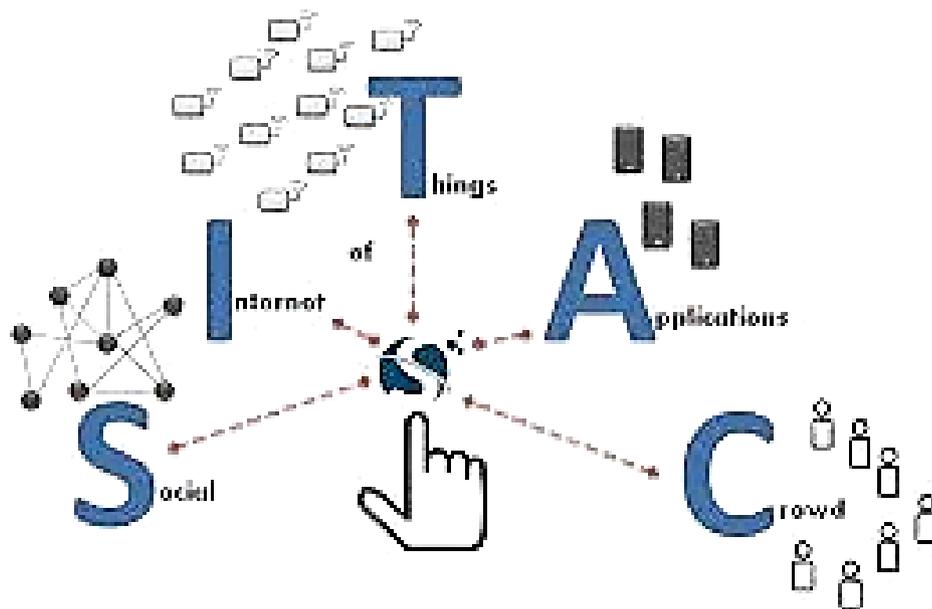


Fig. 1. Social internet of things

3. SOCIAL COMMUNITIES OF SMART OBJECTS

Social media is the single most impactful development. Now various appliances. Objects and devices can be use social media as well to post data about their state in the social network

of human interact in social network with humans and other objects and other objects and to build a social communication network with other objects. The socialization of objects data will provide more accurate and contextual information which can be used to offer value added services to users in their social sphere.

The cooperation between smart objects will create trusted, dynamic communities that enable insightful data that is beneficial to people and organisation. It provide us in secure manner. In big data making big money involves that the social web has proven to be an amazing source of information, our likes, dislikes, updates and interactions all are a critical part of the big data revolution, which has led to a much deeper understanding of consumer behaviours. Face book, Twitter and Google have all turn this data into billions dollar in the form of analytics, targeted marketing services and more.

4. GATEWAY AND OBJECTS

In Gateway and Objects systems, the combination of layers may vary mainly depending on the device characteristics. The following three scenarios can be foreseen. In a simple one, a dummy Object that is equipped with a functionality of the lowest layer, is only enabled to send simple signals to another element (the Gateway). The Gateway is equipped with the whole set of functionalities of the three layers. In another scenario, a device (e.g., a video camera) is able to sense the physical world information and to send the related data over an IP network.

The object would then be set with the functionality of the Network Layer other than that of the Application one. Accordingly, there is no need for a Gateway with Application Layer functionality. An Application Layer in a server, somewhere in the Internet, with the gateway application layer functionality would be enough. According to a third scenario, a smart object (e.g., a smart phone) may implement the functionality of the three layers so that the Gateway is not needed, but for some communication facilities targeted to maintain the Internet connectivity of the object. This is the case of a smart phone, which has enough computational power to perform all the three- layer operations and that may need a Gateway for ubiquitous network connectivity.

5. BENEFITS OF SOCIAL INTERNET OF THINGS AND EXAMPLES

Social internet of things improves the customer relationship by providing an accurate analysis of customer data. The continuous feed of data from the communities gives us big data team. It is the power to predict the movements and the evolution of the market. It improves business in a great success.

Examples: Social media today highlights some of the technology is paving the way for the future. It includes smart vending machines, Video media advertising in store retail mobile applications and much more. Focus on social messaging the most of the users spend time on mobile phone. As the user's location is critical for social apps, the lot can provide us with detailed information about the user and its surroundings. The internet of things devices are tracking and recording more data points. For business, this is a unique opportunity to reach consumers through a new type of screen.

6. APPLICATIONS

Several applications can benefit from the availability of social relationships between things interconnected to a network composed of trillions of nodes. While a few interesting applications can be the increase in the number and categories of objects able to connect to the Internet.

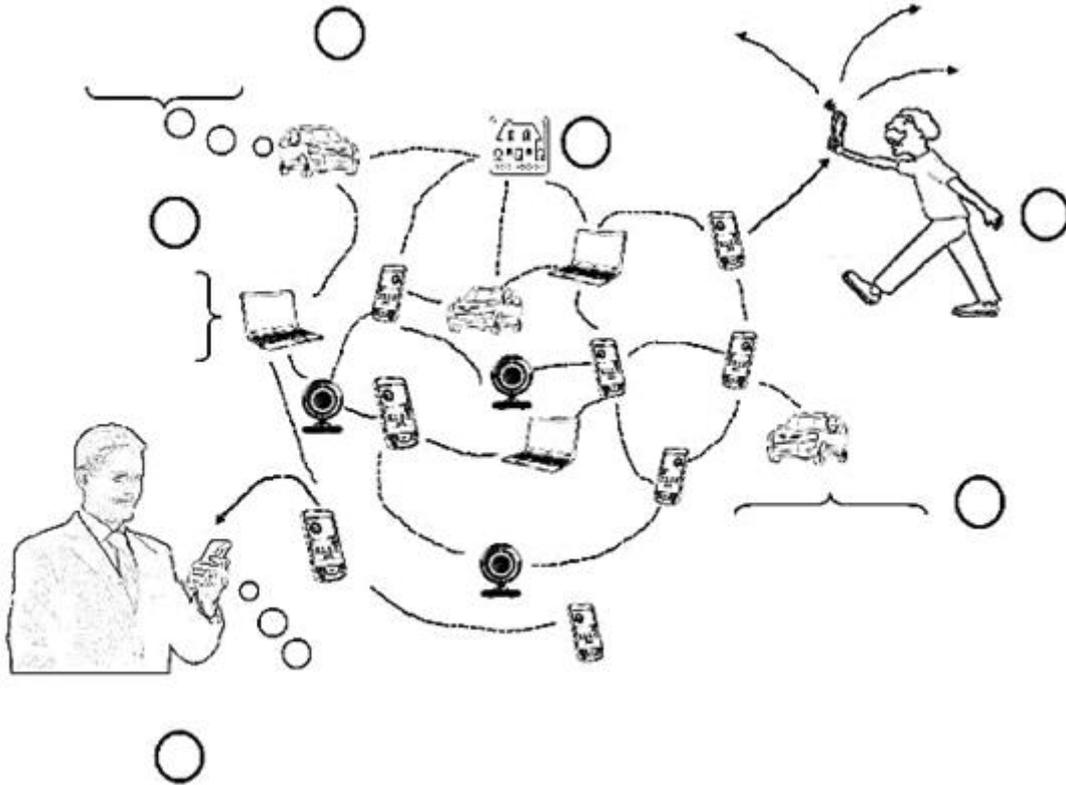


Fig. 2. Applications in the Internet of social things

1. Antonio has bought a new house in a block recently built according to advanced eco-friendly principles. Each at is equipped with controllers and sensors able to manage and measure energy consumption and production (photovoltaic and solar cells) during the whole day. By means of their IoT social network, the domestic controllers are able to ex-change information on the energy usage with reference to: consumption and production of energy to perform local benchmarking, identification of the energy providers that best match the house needs identification of the household appliances with the highest efficiency levels. A light in any house changes the color according to the energy saving level obtained by its owner, which differs from other houses in the block. Ownership and co-location relationships are exploited in this scenario.

2. Daniele is a frequent traveler for work and needs the network to connect to his colleagues, customers, and family. His smart phone is a member of the IoT social network and is able to get information about the places in his surroundings that are covered by a stronger signal, by

less congested UMTS cells, by its operator base stations (for free data service), and by free WiFi. Again, the right friend devices in this scenario are found by looking for special member categories (smart phone and PCs) and geographical locations.

3. There are several sensors that are going to be installed more and more numerous in any environment. These provide information about the status of environments in terms of temperature, crowdedness of the ambient (rooms, theatres, discos, and others), identity of the people, humidity level, and other parameters about the weather. All these objects may exchange friendship with the controller of Laura's closet. She is preparing for her next travel and automatically acquires the list of clothes to be used for a comfortable travel.

7. CONCLUSIONS

The main goal of this paper is focused on the integration of social networking concepts into the Internet of Things which leads to the so called Social Internet of Things paradigm. Recently, the SIoT has been the subject of several independent research activities as it promises to achieve scalable solutions in networks interconnecting trillions of nodes and to support new interesting applications. More specially, in this paper it identified the types and the characteristics of the social relationships that can be established by objects in the SIoT.

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