Mobile Ad-Hoc Social Networks in Android Platform-A Survey

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Abstract— Ad-hoc social networks are required by people to strengthen local communication between them. Social media is the main aim on social network face-to-face communication is less useful for file sharing and group discussions. Thus, care must be taken that a proper model of the end-to-end communication is used. Mobile ad-hoc social networks (MASNs) have emerged as a self-configuring and self-organizing social network. It improves the interactions among different mobile users. In this work we develop BASA for instant access. It constructs a local mobile adhoc social network on top of android platform making people to communicate with each other without using internet.

Keywords— BASA, MASNs, mobile ad hoc networks

1. Introduction

Ad-hoc Social Network (ASN) is a combination of social network and ad-hoc network. Today the majority of mobile phones is armed with Bluetooth, Wi-Fi, and Cellular radio and so are able for supporting ad-hoc communication mode. ASN is a network where people of alike interests link with each other using ad-hoc communication mode of mobile devices. ASN has its own benefits as it uses infrastructure-less network for communication. ASN is more meaningful as users are interested to know which of other users have similar interests and are within communication range so that they can either chat or personally talk on current interests [1].

The number of objects that are currently accessing the Internet, side-by-side to human beings to present, search for, and accessing enhanced services is growing exponentially. Among them are sensors, actuators, wireless and mobile devices enhanced with capabilities to interrelate with the external world through the Internet.

This is a clear signal that the much-vaunted (and sometime abused) Internet of Things paradigm is already turned into a reality on which there is a strong convergence of the interests of researchers, users, and industries. As a main effect, we have today a new approach available to build enhanced applications and services involving the communications among objects on the Internet to the service of the human beings [2].

Social network sites offer numerous services. In comparison, mobile social networks can provide even more due to the integrated technologies (GPS, Camera, Wireless technologies, etc.) of mobile terminals. However, the facilities of mobile social networks are significantly limited by specific mobile phone weaknesses/limitations (e.g. small screen, keyboard) which is less comfortable for the user in comparison to PCs or laptops. Thus, it is important to examine whether despite the limitations of mobile phones it is possible to provide a similar package of services as the one offered by on-line social networks [3]. This set of services has to be available in a single application and be completed by other services based on the integrated technologies of the mobile phones. Surely, these targets should be achieved without compromising the usability of the application and overall satisfaction of the user.

In this work we develop an application called BASA which builds a local mobile ad-hoc social network. The participants might exchange information and share documents with new partners in scenarios such as conferences and expositions. To design BASA so that students, known persons as well as strangers can communicate with each other without the use of internet absolutely free of cost.

2. System Architecture

BASA which has hierarchical system architecture mainly consist of layers such as network, social and application layers. Two adjacent layers are dependent to each other. BASA is developed to solving the challenging issues imposed by MASNs. The device layer primary objective is to attain the device — independence connection and scalability. The network layer is aimed to achieve interconnection with minimal IT infrastructure support. The social layer aims to understand the self-orchestrating socialization capability in MASNs. The application layer provides different value-added social services beyond the above three layers. Besides, BASA also integrates the other features from MASNs such as user mobility and limited system resources into the design consideration.

The main objectives of this proposed approach are:

- To provide a novel and consistent solution to work, communicate and socialize by community creation, management and communication in social community spaces.
- To offer good usage for both individuals and communities based on proactive smart space behaviours and dynamic sharing of community resources through boundaries.
- To develop a robust, open and scalable system for self-orchestrating community smart spaces in the MASNs.

2.1 Adhoc Network

An ad-hoc network is a local area network (LAN) that is built impulsively as devices connect. Instead of relying on a base station to organize the flow of messages to each node in the network, the individual network nodes forward information to and from each other.

2.2 Advantages Of Adhoc Network

- Flexibility is high
- Better mobility
- Economical
- Robust network

2.3 Mobile Network

Mobile network is a wireless network distributed over land areas called cells, each assisted by at least one fixed-location transceiver, called as a cell site or base station. In a mobile network, each cell uses a different set of frequencies from neighboring cells, to avoid interference and offer guaranteed bandwidth within each cell. When joined together these cells offer radio coverage over a wide geographic area. This supports a large number of portable transceivers to communicate with each other and with fixed transceivers and telephones everywhere in the network even if some of the transceivers are moving via more than one cell during transmission.

2.4 Social Network

A social network is a structure of entities that are connected to each other through interdependencies. The social network is a theoretical construct beneficial in the sciences to learn relationships between individuals, groups, organizations, or even entire societies. The term is utilized to define a social structure determined by such interactions. The ties over which any given social unit connects denote the convergence of the various social contacts of that unit. This theoretical approach is, essentially, relational.

2.3 Mobile Adhoc Social Network

A MASN is a mobile communications system which comprises the social relationship of the users. The traditional networking protocols can be altered by manipulating the mobility pattern and social relationship to enhance the performance of data delivery services in MASNs.
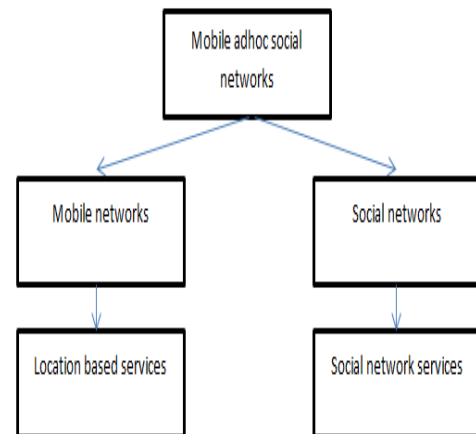

Fig 1: Architecture

The BASA mainly focus on interaction between the mobile users within the campus and accessing of important data without the use of internet. Here we take college as the client for communication. In these method student teachers or any others they can download the application of BASA and make communication with each other.

Ad-hoc network management establishes local mobile ad-hoc networks for mobile device connections. In a specific area, BASA detects mobile devices in the vicinity of active users. It gets a list of nearby devices connected in the network. By virtue of the short range communication protocol stacks, BASA creates a mobile ad-hoc network. BASA periodically conducts common network operations with the basic elementary functions for network discovery of nodes, services, and connection changes while reducing the network costs. Mobile network can guarantee the performance of data delivery and adhoc network can reduce the cost.

2.6 Advantages

- Knowing people and making friends over adhoc social networks
- Ease of use
- It is used to exchange information between friends
- Interaction between two mobile users takes place without any interruption.
- Simplicity of implementation
- High efficiency

- The image used in each figure is clear.
- All text labels in each figure are legible.

3. Results

The proposed work is implemented using NS2 simulator tool. Performance analysis is carried out by setting 100 nodes with a grid size of 1000×1000 m. The performance evaluation is based on the different parameters such as packet size, data packets send, data packets received and number of packets delivered. Throughput delay and energy consumption are measured to know the performance of the proposed method.

3.1 Throughput

Throughput is the rate of successful information delivery through a communication channel.
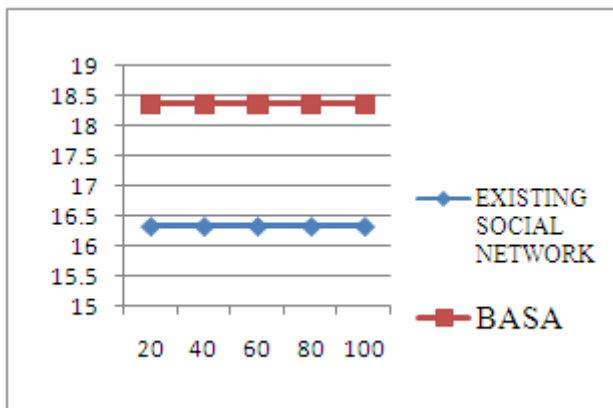

Fig. 2: Throughput

3.2 Delay

The delay of a network indicates how long it takes for a bit of data to travel across the network from one person to another.
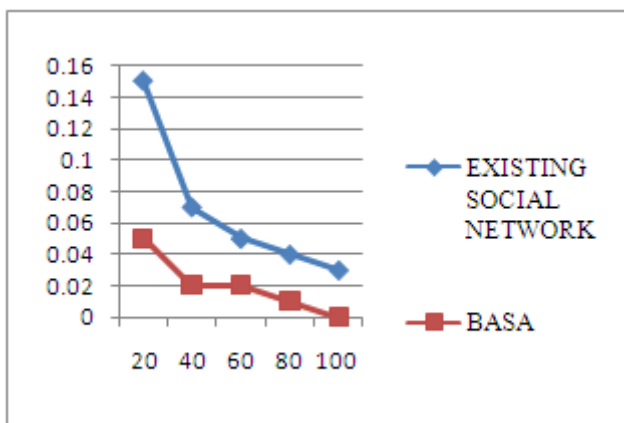

Fig. 3: Delay

3.3 Energy Consumption

Energy consumption is defined as the amount of energy it takes for communication.
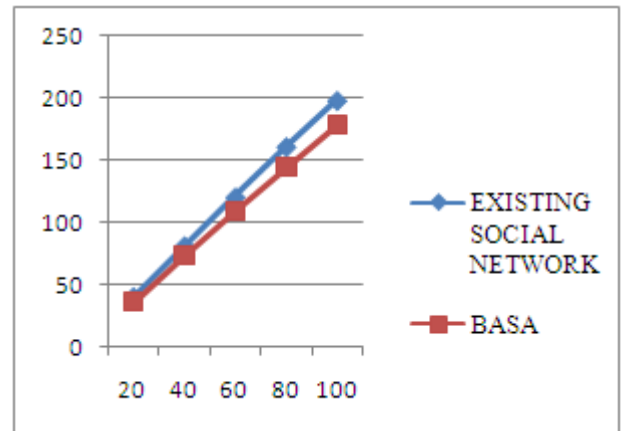

Fig. 4: Energy Consumption

4. Conclusion

The mobile ad-hoc social networks are becoming a fast growing development recently. In this work, we have projected a solution called BASA to construct mobile ad-hoc social networks. BASA supports the developers to promptly construct prototypes for the local social networks using handheld devices. The proposed work can be done in two areas. First, by increasing the scalability by using hopping concept of networking .Second, you can charge your mobile phones. This can be charged by using a hardware device which uses Wi-Fi to charge the mobile phones for this the user should be using BASA application within college limits.

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