

# A Survey Paper on Mobile Ad Hoc Wireless Networks over TCP

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**Abstract:** 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 synchronize to the flow of messages is to send each node in the network, the individual network nodes forward packets to and from each other. In Mobile Ad hoc Network (MANET), is a wireless ad hoc network or ad hoc wireless network that has a lot of free or self-governing nodes, often composed of mobile devices or other mobile pieces, that can arrange themselves in various ways and operate without strict top-down network management. Each device in a MANET is free to navigate any way independently and it will therefore change its path or link to other devices continuously. It has increase the grip as the most feasible suggestion. It has many approaches for increase the performance for lousy channel, Path Asymmetry. Path Asymmetry includes the bandwidth Asymmetry, Loss rate Asymmetry and the route asymmetry. In this Paper, Describes the various issues of Mobile Ad-hoc Wireless Networks over the TCP and compare the existing and Proposed System

**Index terms:** Ad-hoc Network, Local Area Network (LAN), Mobile Ad hoc Network (MANET), Self-Governing, Bandwidth Asymmetry, Loss Rate Asymmetry Route Asymmetry.

## I. INTRODUCTION

### A. Wireless Networks:

Important needs of Wireless Networks:  
Access computing and communication on the move.

### B. Infrastructure Based Networks:

Traditional cellular systems (base station infrastructure)

## C.WIRELESS LANS

Infrared (IrDA) or radio links (Wave LAN) and it is very flexible within the reception area [2]; It Provides possible network to Adhoc Networks and also it provides low band width compared to wired networks (1-10 Mbit/s) Ad hoc Networks. It is useful when infrastructure not available, impractical, or expensive Military applications, rescue, home networking.

## D. Cellular Wireless

In Single hop wireless connection is to the wired environment. Each Space separated into the part of cells [1]. A base station is responsible to communicate with hosts in its cell Mobile hosts can change cells while communicating. Handoff occurs when a mobile host starts communicating via a new base station

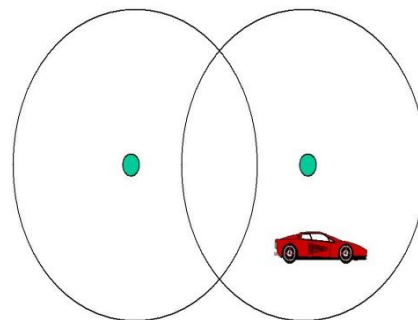
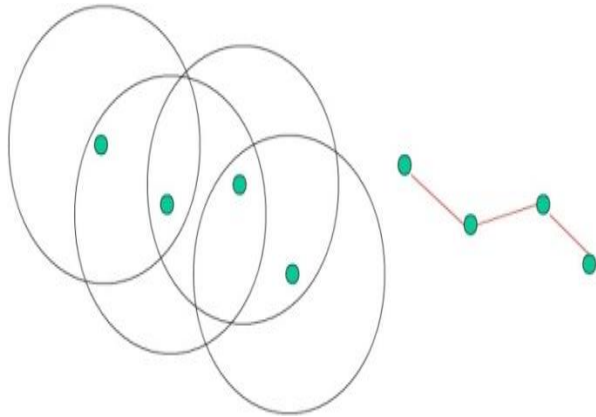


Fig: 1 Single Hop Wireless Network

In Multi-Hop Wireless May need to traverse multiple links to reach destination. Mobility causes route changes [5]. Mobile Ad Hoc Networks (MANET) Host movement frequent. Topology change frequent. No cellular infrastructure. Multi-hop wireless links. Data must be routed via intermediate nodes.



**Fig: 2 Multi Hop Wireless Network**

The rest of the paper is organized as follows. Review of the literature summarized in Section 2. In Section 3, the methods of feature extraction are to be summarized. Multidimensional indexing explained in Section 4. In Section 5, feature matching process is proposed. Image Classification is explained in Section 6. Conclusions are proposed in Section 2 [3]. Then the list of references is provided finally.

## II. TYPES OF SENSOR NETWORK

There are five type of wireless sensor networks:

### A. Terrestrial WSNs:

It consists of hundreds to thousands of wireless sensor nodes deployed in a particular area and the deployment can be in an adhoc or planned manner.

These networks are different from generic wireless adhoc networks, in that the traffic is not created by the nodes, but by the environment in which they exist [6].

### B. Underground WSNs:

It consists of a large number of sensor nodes buried underground to monitor underground conditions. In this some additional sink nodes are placed above ground to relay information from sensor nodes to base station.

### C. Underwater WSNs:

Sound has better distinctiveness, making it the appropriate technology for underwater communication [15]. Underwater wireless communication are established through transmission of acoustic waves.

### D. Multimedia WSNs:

Wireless Multimedia Sensor Networks is a network of devices that are connected wirelessly and allow retrieving audio and video streams, scalar data and still images.

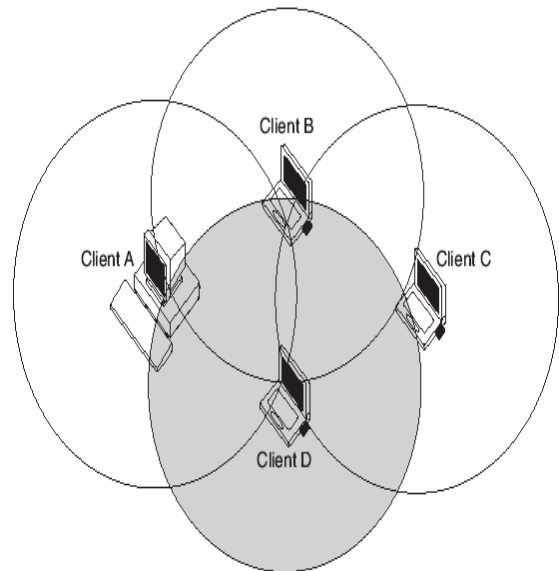
### E. Mobile WSNs:

In mobile WSNs sensor nodes can move on their own and have capability to sense and communicate like static nodes. In mobile WSN the nodes have ability to organize themselves in the network. A node can communicate information to the other nodes when they are within range of each other.

## III. REVIEW OF LITERATURE

Enhancing TCP Performance over Mobile Ad Hoc Networks for Higher Good put rate:

- TCP treats this as congestion and invokes congestion control mechanisms resulting in reduction of throughput [10].
- TCP performance degrades as a result of packet losses due to route failures in mobile ad hoc networks.



**Fig 3: Connecting Devices through Network**

#### IV. SECURITY REQUIREMENTS

In Security components are variant in different sensor network. Some of the following security targets such as

##### A. Confidentiality:

It means that only the authenticated people are able to interpret the message (date) content and no one else [7]. An attacker can eavesdrop on the packets transmitted in the air as long as he is able to keep track of the radio channels used in the communication.

##### B. Authentication:

In addition to modifying existing packets, an attacker can directly inject packets if he knows the packet format defined in the network protocol stack. The injected packets can carry false information, which may be accepted by receiving nodes. The Sybil attack is a typical example of packet injection.

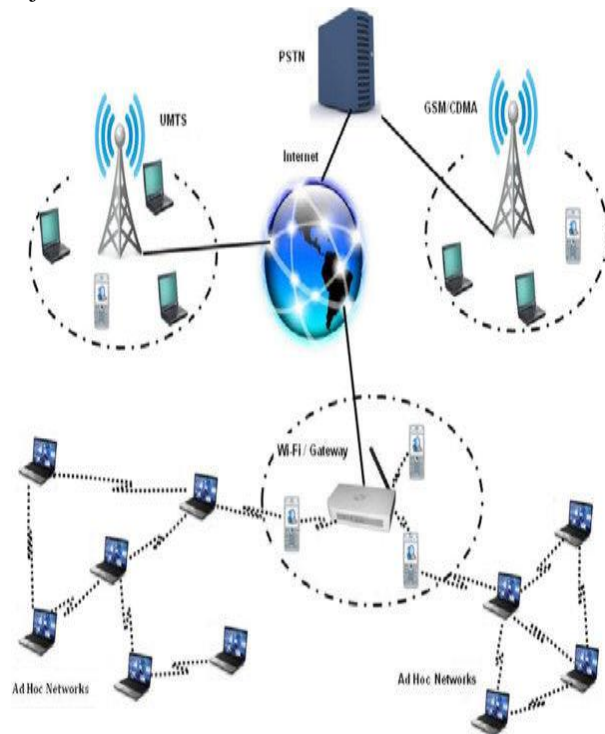


Fig 4: Privacy Control for Ad- Hoc Network

##### C. Integrity:

Integrity means that the content of the communicated data is assured to be free from any type of modification between the end points (sender and receiver). Data integrity is to ensure that information is not changed in transit, either due to malicious intent or

by accident. [8] Thus, integrity is an assurance that packets are not modified in transmission. This is a basic requirement for communications because the receiver needs to know exactly what the sender wants her to know.

##### D. Availability:

Availability is an assurance of the ability to provide expected services as they are designed in advance. It is a very comprehensive concept in the sense that it is related to almost every aspect of a network.

##### E. Freshness:

All information describes a temporary status of an object and thus is valid in only a limited time interval [9]. Therefore, when a node receives a packet, it needs to be assured that the packet is fresh. Otherwise, the packet is useless because the information conveyed in it is invalid. An example is the Wormhole attack in WSNs.

##### F. Wormhole attack:

In a wormhole attack, an adversary records data packets or location messages in one part of the tunnel and transfers stolen messages to a different part of the tunnel [13].

##### G. Key management:

Key management is the way how to manage the security keys (how dynamically generated, concealed and distributed, finally how well-kept by the actual target) users [12]. Key Management is a key issue with respect to IPsec over multicast Satellite Communication.

##### H. Sybil Attack:

Sybil attack was defined as a malicious device or node having multiple identities. Due to the immature authentication mechanism of WSN, Sybil attack utilizes a single malicious device or node to forge and pretends to be legitimate nodes.[11]

Wireless communication is based on the principle of broadcast and reception of electromagnetic waves. The low frequency radio, microwave and infrared waves are used for information transmission. Radio waves are characterized by their frequency and wavelength

- The high frequency X ray and Gamma rays though better for communication are not used due to practical concerns

- Difficulty to generate and modulate these waves
- Cause harm to living things
- Do not propagate well through buildings

## V. ISSUES IN AD HOC WIRELESS NETWORKS

### A. Medium Access Scheme

- Hidden terminal
- Exposed terminal
- Access delay
- Fairness

### B. Routing

- Finding route exchange routing information
- Repairing broken links
- A good routing protocol should be able to solve these issues:
- Mobility
- Bandwidth constraints
- Error prone channel (BER –high)

### C. Multicasting

- Tree based protocols
- Mesh based protocols

### D. Transport Layer Protocol

- Set up and maintain end to end connection
- Flow control
- Congestion control

### E. Self-organization

- Neighbor discovery
- Topology organization

### F. Energy Management

- Process of managing energy resources by controlling
- Battery discharge
- Adjusting transmission power
- Scheduling of power sources

### G. Security

- Important especially in military applications

## V. CONCLUSION

In this Mobile ADHOC Wireless Networks over TCP network security is more difficult to monitoring. In this paper, presented an inclusive survey about the Mobile Ad Hoc Network (MANET) and its components. Based on sensor network protocol characteristics of traditional wired networks, wireless ad hoc networks, wireless mobile approaches and types of ad hoc network as well as all the obtainable ad hoc protocols,

and we evaluation between the different papers, most of its conclusions pointed to a occurrence, not a routing protocol can adapt to all environments and the different types of attacks. In sensor network Key Management is important and more help to research in sensor network security.

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