A Review Paper on Satellite Phones

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Abstract— A satellite phone commonly known as sat phone is a type of mobile phone which connects orbiting satellites rather than connecting terrestrial cell sites. They provide functionality such as voice call, short messaging service and low bandwidth internet access are commonly supported by various systems. At present exiting satellite phone is used in places where mobile phone or landline can't work therefore we use satellite phones which is used to connect to the world satellite and it does not require mobile towers to connect through others, it directly connected with the satellite. Satellite can be used anywhere in the world. Satellite phone services uses advanced technology to deliver services same way delivered by phone around the world. Satellite phones nowadays are becoming very popular communication sector. SATPHONE are used in areas where network access fails or no communication system is placed. Using a sat phone we can connect to whole world from the area where no communication is possible due to absence of traditional communication system.

Key words: SATPHONE, INMARSAT, Satellite Phones

I. INTRODUCTION

A Satellite phone rather than connecting traditional terrestrial communication system it connects satellites directly for communication. This phone can be used around the whole world no matter of our location whereas normal phone needs proper network coverage. We can use satellite phone for voice call, internet access in low bandwidth and message service. Satellite phone have special country calling code before issued number. Different operators use different codes. Due to high calling cost and various rules and regulations set up by the government limiting its uses. It is used in areas where network access is highly difficult or not possible. Using a sat phone in disaster prone areas can prevent many risks and may even leads to save human life.

Fig. 1: satellite Phone

II. WORKING OF SATELLITE PHONE

Satellite Phones can be said as complicated radio transmitters. Traditional cell phones use antennas present on earth to send information or data in form of a signal. Signal from satellite phone is received by satellite revolving around the orbit. Then the signal from satellite is sent back to the Earth which is further transferred to Earth station.

From the Earth Station signal is transmitted to service provider from where signal further transmitted to its final Destination.

The process of transmitting data or signal to the satellite revolving around the earth's orbit is known as "UPLINK" and the process of receiving signal from satellite is known as "DOWNLINK". The information transmitted or received can be in the form of voice call or data.

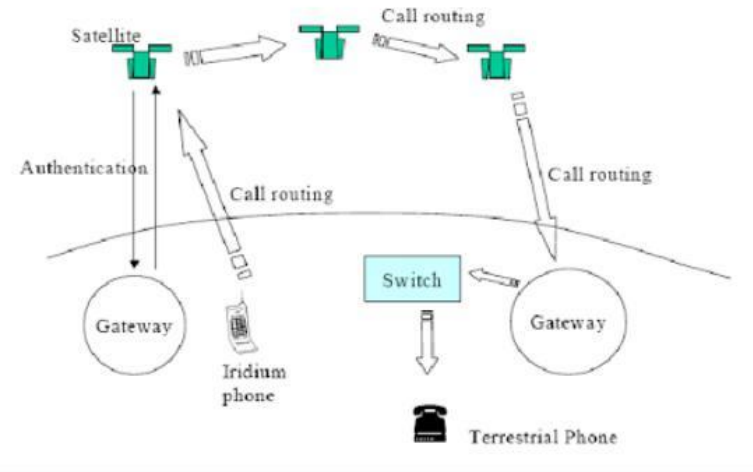

Fig. 2: Working

III. DIFFERENT OPERATORS

- ACeS is operator which using a single satellite provide data and voice services in Southeast Asia, East Asia and South Asia.
- INMARSAT It is also a satellite phone operator established in 1979. It has recently tied up with ACeS in the market of satellite phone before this it provide installation on various ships.
- THURAYA this operator established after Inmarsat in 1997 and provides services in Asia, Australia, Middle East, Europe, and Africa.
- GLOBALSTAR In this network it consists of 44 satellites but for a proper communication satellite must be in earth station's range.
- IRIDIUM In this network it consist of 66 satellites cover whole Earth.

IV. CALLING COST

The calling cost from a satellite phone is varies from 10-130 rs per minute depending on various operators, while calling on a satellite phone from other phone is also much expensive.

V. STEPS FOR MAKING A CALL

Various steps involved in making a call or sending a message from a sat phone.

1) Turn on the phone
2) Stand outside from building so that there is clear vision of sky.
3) Open your sat phone antenna to look for a signal.
4) A GPS fix is obtained by phone.
5) Phone will automatically connect with the network.
6) Use your sat phone in making a call or sending an SMS/email
7) The phone will perform up linking process.
8) After that satellite downlinking process is done with a Earth Station,
9) Now the earth station will deliver the message to recipient.
10) It also records GPS location of that phone.
11) After completion of your call or message close antenna of sat phone and turn off.

VI. ADVANTAGES

1) High Coverage

Sat phone has a coverage area which covers almost whole earth.

2) Voice Clarity

It works on Code Division Multiple Access technology which helps in a clear and good voice quality.

3) No call Drop

Call will not be dropped no matter phone moves from sight of one satellite to other .only blockage from a building or mountain will leads to soft Hand off.

4) No voice delay

We use satellites moving in Low Earth Orbit at 1414 km height so there is no voice delay.

5) Reliability

The system's software is maintained from earth stations which lead to mast easy up-gradation of system.

VII. DISADVANTAGES

- Sat phone will not work properly in indoor areas or near very tall buildings.

- Satellite phone are larger in size compared with the normal phones available in the market.
- Calling rate from satellite phone is costly.
- It can't be tracked easily so can be used for some terrorist activity.

VIII. CONCLUSION

The Few drawbacks are can be avoided or minimized when considering the function of a satellite phone. It can create a link between the people from places where no other link is possible. It also allows keep people to be in touch with their family members for e.g. military, researchers and developers to have communication anywhere around the world and it also provide communication in disasters when traditional phones and landlines system get disturbed and don't function properly.

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