



Introduction to Wireless Communication

Priyanka Sahni & Abhinav Batra

IT Department Dronacharya College of Engg. Gurgaon, Haryana

Priyankasahni09@gmail.com; abhinav.batra18@gmail.com; yadavravishu@gmail.com

ABSTRACT

Transmitting voice and data using electromagnetic waves in open space or environment. Wireless communication is the transfer of information between two or more points which are not connected by an electrical conductor. In our research paper we are going to focus on what is wireless communication, its various examples, applications, comparison of various systems.

INTRODUCTION

Wireless operations permit services, such as a long-range communications, that are impossible or impractical to implement with the use of wires. The term is commonly used in the telecommunications industry to refer to telecommunications systems which use some form of energy to transfer information without the use of wires. Information is transferred in this manner over both short and long distances.

MODES

1. Radio
2. Sonic
3. Free space optical
4. Electromagnetic induction

WIRELESS SERVICES

- WiFi
- Infrared and ultrasonic remote control devices
- Professional LMR and SMR typically used by business, industrial and Public Safety entities.
- Consumer Two way radio including FRS Family Radio Service, GMRS (General Mobile Radio Service) and Citizens band radios.
- The Amateur Radio Service
- Consumer and professional Marine VHF radios.
- Airband and radio navigation equipment used by aviators and air traffic control
- Cellular telephones and pagers: provide connectivity for portable and mobile applications, both personal and business.
- Global Positioning System (GPS): allows drivers of cars and trucks, captains of boats and ships, and pilots of aircraft to ascertain their location anywhere on earth.^[9]
- Cordless computer peripherals: the cordless mouse is a common example; keyboards and printers can also be linked to a computer via wireless using



technology such as Wireless USB or Bluetooth

- Cordless telephone sets: these are limited-range devices, not to be confused with cell phones.
- Satellite television: Is broadcast from satellites in geostationary orbit. Typical services use direct broadcast satellite to provide multiple television channels to viewers.

APPLICATIONS

1. Mobile telephones
2. Wireless energy transfer
3. Wireless medical technologies
4. Computer interface devices

CATEGORY OF WIRELESS IMPLEMENTATIONS

- Radio communication system
- Broadcasting
- Amateur radio

- Land Mobile Radio or Professional Mobile
Radio: TETRA, P25, OpenSky, EDACS , DMR, dPMR
- Cordless telephony, Cellular networks: 0G, 1G, 2G, 3G, Beyond 3G (4G), Future wireless
- List of emerging technologies
- Short-range point-to-point communication : Wireless microphones, Remote controls, IrDA, RFID (Radio Frequency Identification), TransferJet, Wireless USB, DSRC (Dedicated Short Range Communications), EnOcean, Near Field Communication
- Wireless sensor networks: ZigBee, EnOcean; Personal area networks, Bluetooth, TransferJet, Ultra-wideband (UWB from WiMedia Alliance).
- Wireless networks: Wireless LAN (WLAN)