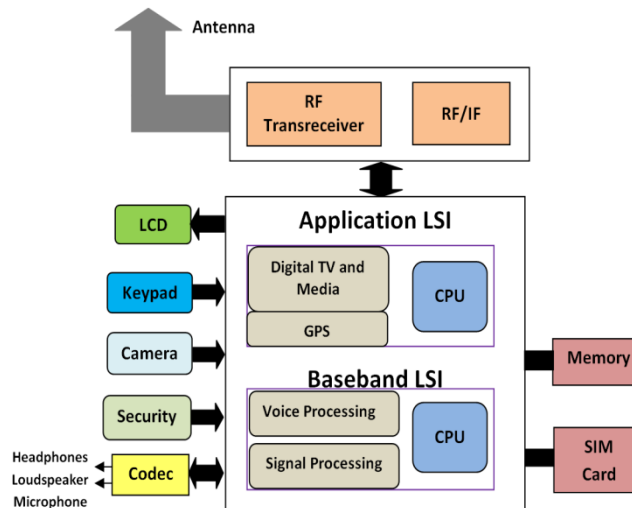**Mobile phone**
- Mobile phone is a Duplex device.
- When we use one frequency for talking, a second separate frequency is used for listening.
- So that both the people on the call can talk at once.
- The Mobile phone can communicate on 1,664 channels or more.
- The Mobile phones operate within the cells, so that it is easy to switch on to different cells as they move around.
- A person using a cell phone can drive hundreds of kilometers and can maintain a conversation during the entire time because of the cellular approach.

System Block Diagram of Mobile Phone

Inside the Mobile phone
- Mobile phone is a sophisticated device using SMD components, Microprocessor, Flash memory etc.
- In addition to the Circuit board, Mobile phone also has Antenna, Liquid Crystal Display(LCD) , Keyboard, Microphone, Speaker and Battery.
- The circuit board is the heart of the Mobile phone.
- It has chips like Analog-to-Digital and Digital-to-Analog conversion chips that translate the outgoing audio signal from analog to digital and the incoming signal from digital back to analog.

Following are the Chips present in Mobile phone.
1. **Digital signal processor:**
   - ❑ Generally rated as having 40 MIPS (millions of instructions per second) to conduct calculations of signal manipulation at high speed.
2. **Microprocessor:**
   - ❑ Handles all the housekeeping tasks for the keyboard and display.
   - ❑ Deals with command and control signaling with the base station, and coordinates the rest of the functions on the board.
3. **Flash memory and ROM Chips:**
   - ❑ Act as a storage location for the phone.
   - ❑ Chips store the customizable options of the cell phone, as well as the entire operating system.

- ❏ The power and radio frequency sections of the phone, phone recharging and power management etc are controlled by this chip.
- ❏ Controls several hundred FM channels.
- ❏ The RF amplifiers focus on signals that go in and out of the phone's antenna.

1. The microphone converts the sound signal into an analogue electrical signal.
2. The analogue signal is amplified.
3. The ADC converts the analogue signal to digital
4. The parallel to series converter takes eight bit binary number and emits it as a series of pulses (bits)
5. The modulated carrier wave is amplified
6. The carrier wave is then switched to the aerial and sent to the base station.