

### Wireless charging part

Wireless charging is based on magnetic resonance or inductive power transfer (IPT). This is the process of passing a current between two objects by using a coil to sense an electromagnetic field. The supply voltage is converted to high frequency alternating current (AC). Alternating current (AC) is sent from the transmitter circuit to the transmitter coil. The alternating current then generates a time-varying magnetic field in the transmitter coil. The AC current flowing in the transmitter coil induces a magnetic field extending to the receiver coil (when within a specified distance).

The magnetic field generates an electric current in the receiver coil of the device. The transfer of energy between the transmitter and receiver coils is also known as magnetic or resonant coupling, and is achieved by two coils that resonate at the same frequency. Current flowing in the receiver coil is converted to direct current (DC) by the receiver circuit, which can then be used to charge the battery wirelessly.

### The clock part

Under the condition of the normal power supply, through BS83188 MCU external 32.768 KHz crystal vibration frequency division processing to timing, it was time to do the corresponding state controlled by BS83188 will need to display the data sent to the LED display module circuit in the form of dynamic scanning display the current time, external keystrokes can be set up and use the corresponding function such as clock, alarm clock and sleep.

The functions of main Components are mentioned as below.

- 1) U1 acts as crystal 32.768KHz
- 2) U1:BS83188 acts as clock IC