

## 1. Principle of work

The battery provides the power source for the overall system, after connects the power source the 2.4G RF module enters the standby mode.

Wand+ operate in the 2.4G range, frequency-hopping mode. use of automatic matching same ID, after Wiimote and Wii use jump frequency completed validate same ID to connect at 79 channel to Transmit data. Wireless module frequency coverage : 2402-2480MHz, Channel : 79, data modulation mode : FSK, The maximum working distance 10m. Antenna type : IFA, Antenna gain : 0dBi.

Use ZPX000T IC made 2.4 G wireless module of the whole circuit is the core, it integrated the RF circuit, the baseband control circuit, with peripheral controls in the I/O, ZPX000T module to provide the clock signal by a 26MHZ crystal to ZPX000T, moreover in the module constructs 3.0V and 1.8V voltage regulator circuit gives the peripheral electric circuit to provide the power source.

G sensor uses IC ZPX001C to produce the dynamic signal.

CMOS sensor uses 50 million pixels CMOS holding the CMOS sensors to process the infrared signal for the core.

Presses down in the pressed key array the random key, or the power key may awaken the 2.4G RF module, by now 2.4G RF module to enter the channel pursue mode. After the 2.4G RF module awakens, 2.4G RF module examines the battery voltage, then controls LED1-4 through I/O to demonstrate the battery capacity.

After the channel found, in 2.4G RF module's ZPX000T controls I/O LED to demonstrate the current connection the handle number (1-4), the 2.4G RF module first opens voltage regulation A and B through I<sup>2</sup>C bus, then carries on the data communication with CMOS sensor, G-sensor, Sound module.

G-sensor through the SPI data bus passes the dynamic induction data and the temperature data to in the 2.4G RF module ZPX000T, after ZPX000T processing the data, transmits separately data through the SPI data bus to the station amplifier part , then the station amplifier part transmits the data to the antenna .

CMOS sensor will gather infrared video coordinates data after bus transmission for 2.4G RF module, after 2.4G RF module processing the data , the wireless the station amplifier part, then will transmit the data through the antenna.

The Wii main engine sound data transmits the wireless station amplifier part afterwards after the antenna receive, after ZPX000T interior filter transforms the digital sound data transmit to the sound module buy the I<sup>2</sup>C data bus, thus makes the sound.

The I<sup>2</sup>C data bus simultaneously connects the Wii expansion port through this connection with other Wii peripheral game control device intercommunication, and provides the power source.

Voltage regulation A is exterior voltage-stabilizer circuit, is the battery voltage which inputs stabilizes in the 3.3V manostat , then supply sound module, Wii expansion port use.

Voltage regulation B is the 2.4G RF module interior voltage-stabilizer circuit, is can the battery voltage which inputs stabilize in the 3.0V manostat, outputs behind the power source supply CMOS sensor, G-sensor use.

**End**