

Circuit Description

Receiver

The receiver obtains power from the computer and communicates with it via a USB cable. It utilizes an MCU, the NRF24RF chip antenna and an extended 10cm-long antenna to emit signals in the 2.4GHz band to communicate with the teacher's and students' remotes. The transmitting frequency is regulated by a crystal oscillator. The MCU is programmed to enable the device to communicate with the remotes in 100 different channels. There are LEDs indicating power status of the receiver and whether the receiver is busy receiving or transmitting signals, the latter of which is actuated by a transistor.

The operation is achieved by receiving signals from the PC via a USB cable and transmitting it in the 2.4GHz band. It also receives signals in the said band and relays the information to the PC for further manipulation of the data.