Wireless Doorbell

Introduction:

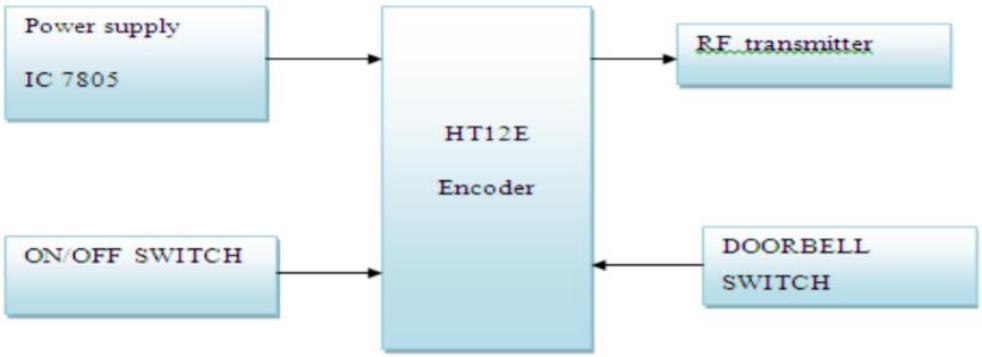
A doorbell is a signalling device typically placed near an entry door to a building. When a visitor presses a button the bell rings inside the building, alerting the occupant to the presence of the visitor. Today the traditional wired type of doorbells are gradually getting obsolete and are being replaced by the advanced wireless type of doorbells that are easier to install due to their hassle free set-ups. In most wired systems, a button on the outside next to the door, lock. One terminal of this button is wired to a terminal on a transformer. A doorbell transformer steps down the 120 or 240-volt AC electrical power to a lower voltage, typically to 20 volts it operates.

Description:

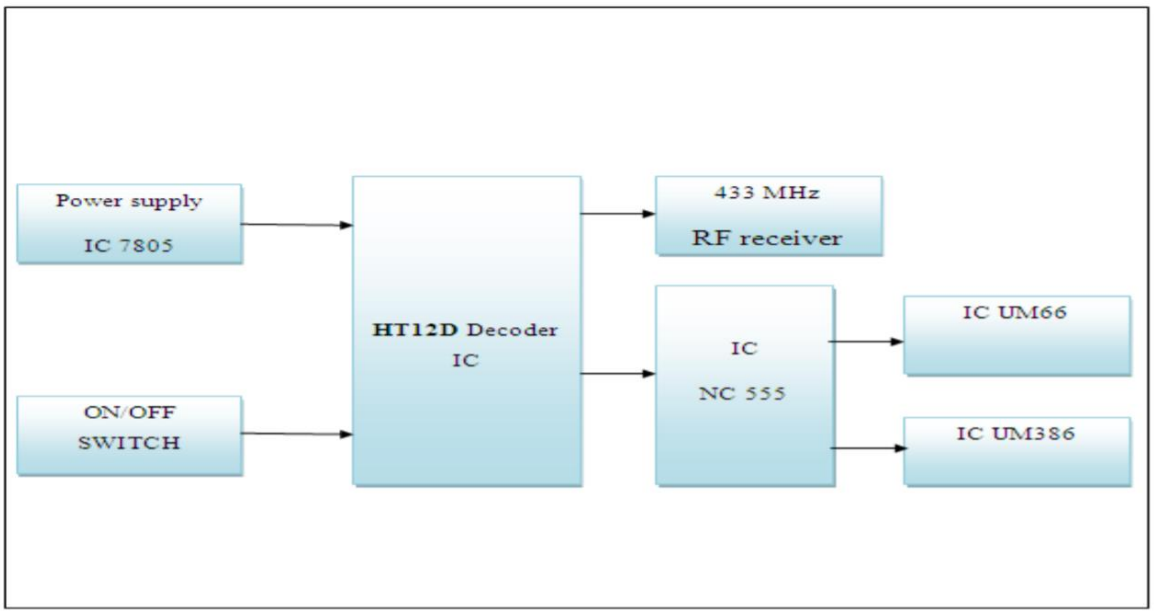
The whole system consist of two section :

1. Transmitter
2. Receiver

Transmitter: The transmitter circuit is built around 5V voltage regulator 7805 (IC1), encoder HT12E (IC2), a DIP switch (DIP1) and a few other components. IC2 converts 12-bit (8-bit address and 4-bit data) parallel data to serial data, which is available at its DOUT DIP1 is used to set the address bit either high or low In this state TX1 consumes very low current of about1mA.



Receiver: The receiver circuit is built around 5V voltage regulator 7805 (IC3), decoder HT12D (IC4), NE555 timer (IC5), melody generator UM66 (IC6), audio amplifier LM386 (IC7) and a few other components. Serial data transmitted through TX1 is received by RF receiver module RX1. It is fed to pin 14 of the decoder. IC4 converts the 12-bit data into 8-bit address and 4-bit data. DIP2 is used to set the address of the decoder. Zener diode ZD1 regulates the output of IC5 to 3.3V.



Conclusion:

The presented circuit of wireless controlled doorbell is employs two major section i.e. transmitter and receiver. The working principal of the circuit is based on both circuits. This transmitter section is designed around oscillator transistor. The output from transistor gives to emitter to generate radio frequency from its collector. We also adjust this transmitter frequency using trimmer. The receiver section has two main sections i.e. RF amplifier section and bell trigger section. An aerial is used to receive the transmitted frequency from remote which is further amplified by amplifier and trigger circuit. The whole receiver circuit utilizes seven transistors. In future invention we can modify doorbell as with sensors and camera ;when person come near to door bell area, then sensor will detect the person and ringer will ringing sound and camera will captures this image at displayed that image in home.