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Wireless Doorbell

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Abstract – *Now-a-day's wireless control of appliance is in practice, because of its advantage like no wire is needed, multiple controlling is less complicated. The controlling range of wireless doorbell is 100M. As the wireless doorbell is wireless based project, it is divided into two major section i.e. transmitter and receiver. Trimmer VC1 is used to adjust the transmitter frequency. Receiver: The receiver section is further divided into two main sections i.e. RF amplifier section and bell trigger section.*

Keywords- *HT12D Decoder IC, IC555 timer, RF Module (Transmitter & Receiver), Transformer , Capacitor , Resistor , Bridge rectifier, power supply using 7805.*

I. INTRODUCTION

A doorbell is a signaling 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.

II. LITERATURE SURVEY

Door lock security systems are classified based on technology used as Password based, Biometric based, GSM based, smart card based, RFID based, Door phone based, Bluetooth based, Social networking sites based, OTP based, Motion detector based .

Password Based Systems: The programmable electronic code lock device [1] is programmed in such a way that it will operates only with the correct entry of predefined digits. It is also called an integrated combinational type lock.

Biometric Based System: The palmtop recognition is the next step for fingerprint recognition. It operates on the image of palmtop.

GSM Based Systems: It reduces the chances of error in other human recognition methods and clarifies the problems which were faced in the fingerprint recognition. The biometric technique is very useful in bank lockers. In many door lock security systems, GSM is used for communication purpose.

Smart Card Based System: A model entryway security framework is intended to permit an authorized person for getting a safe (without need of any key) entryway where valid card of smart RFID is necessary for ensuring the pass of the door.

RFID Based Systems: These types of security systems used for digital door lock are utilizing inactive RFID tags (passive). With the help of this, it ensures that only valid person can get entry.

Door Phone Based System: The earlier system, a specific system in which identification of a visitant is done for the most part by direct communication with the set of the housing estate concerned. A dialing up to the sets over the hands-free telephone is created by the framework at the entryway. Visitors enter inside through the gate by controlling the gate with the help of the telephone set.

Bluetooth Based Systems: Bluetooth based system is a bit like survey house innovations that utilizes Bluetooth function available in smart devices.

OTP Based Systems: The proposed method in latest work does not need administrators help to access the facility if the user knows OTP technique and has a registered mobile phone. Likewise the OTP is generated and sent to the proprietor"s mobile phone whenever user requests to access facility.

Motion Detector Based System: The Motion Detector System working on the principle of amount of light falling on the photodiode. At the point when the laser light is falling constantly on the photodiode, its reading is 255 in decimals. The voltage falls less than 50 in decimals. This flames the alarm and gives notification to the owner about the break in. And automatic lock can be activated.

III. SYSTEM DESCRIPTION

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.

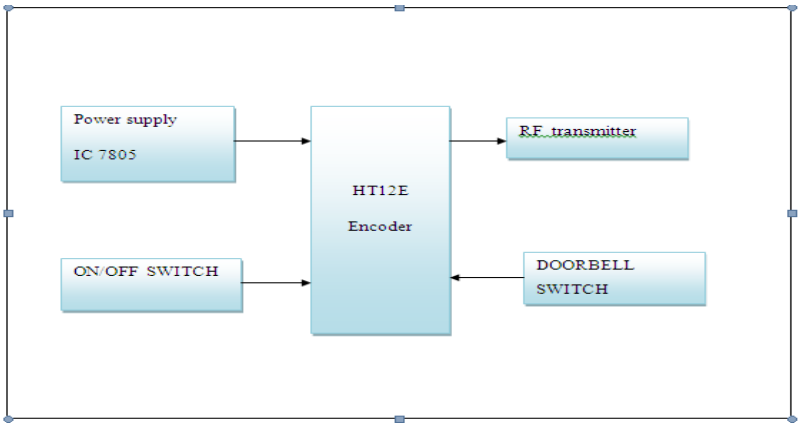

Figure 1. Block diagram of transmitter unit for the wireless doorbell

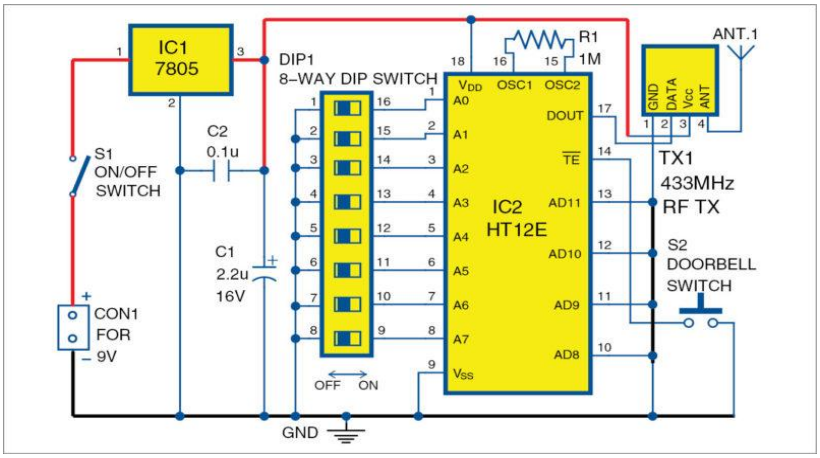

Figure 2. Circuit diagram of transmitter unit for the wireless doorbell

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.

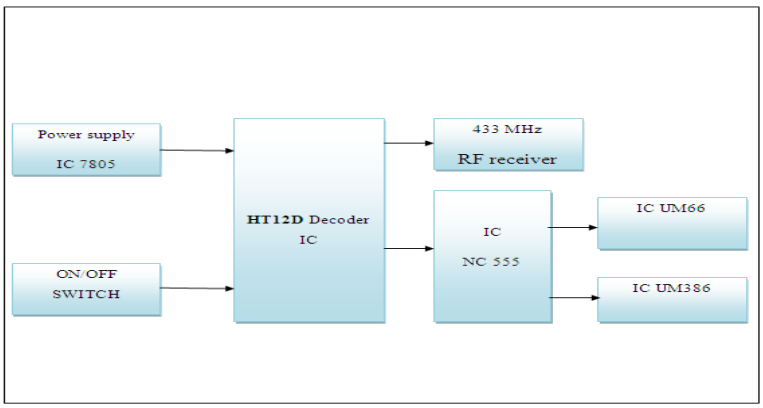

Fig. Block diagram of receiver unit for the wireless doorbell

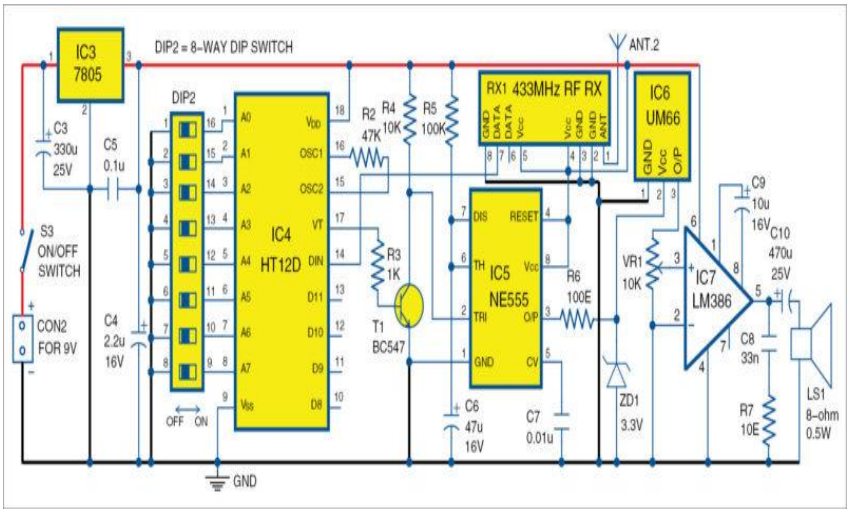

Figure 3. Circuit diagram of receiver unit for the wireless doorbell

IV ADVANTAGES & DISADVANTAGES.

The proposed system is easy to install as well as has low cost of manufacturing and maintenance .Moreover, the wiring required in comparison to conventional doorbells is also reduced. The system is more secure as well as is portable and thus, can be carried and used anywhere. However, it has some disadvantages as well. One of the major disadvantages of the system is that it works on a battery that might get discharged without your knowledge. Both the Transmitter and Receiver parts of the circuit must be always turned on i.e. there should always be power.
Wireless doorbell can be used in homes offices, hospitals banks and in various industrial applications.

V. CONCLUSION & FUTURE SCOPE.

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, thensensor will detect the person and ringer will ringing sound and camera will captures this image at displayed that image in home.

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