

# INDIAN INSTITUTE OF INFORMATION TECHNOLOGY, NAGPUR

Analog Communication | Electronics and Communication Engineering

Remote Control Door Lock

BY Uday Singh (BT21ECE131), Umesh Chandra (BT21ECE117), Anand Vyas (BT21ECE037)



## INTRODUCTION

Security is an important factor for any organisation. Whether industries, banks, museums, or homes, it's important to make every place secure. We are going to learn how to design a simple remote controlled door lock using which one can lock and unlock their doors with just one click from their smartphone or remote control. This replaces the traditional lock system and provides a smart modern lock solution.

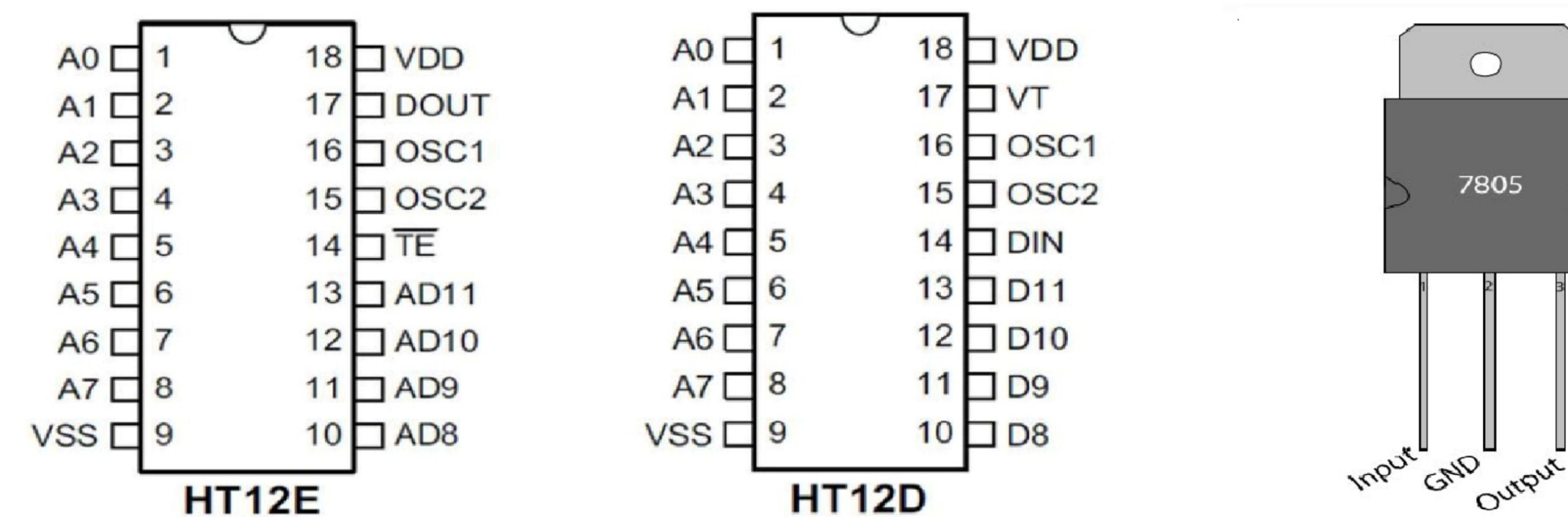
## APPARATUS REQUIRED

- 1) Printed Circuit Board (through hole board)
- 2) Encoder IC-HT12E
- 3) Decoder IC-HT12D
- 4) STX882 (433 MHz transmitter module)
- 5) SRX882 (433 MHz receiver module)
- 6) 14 Pin IC base
- 7) 18 Pin IC base
- 8) IC-7805 5V Regulator IC
- 9) 12 Volt Battery
- 10) 5V Single Channel Relay Module
- 11) Solenoid Door Lock
- 12) Bread Board
- 13) Connecting Wires
- 14) Thin Tip Soldering Iron
- 15) On/Off Switch
- 16) Battery connector

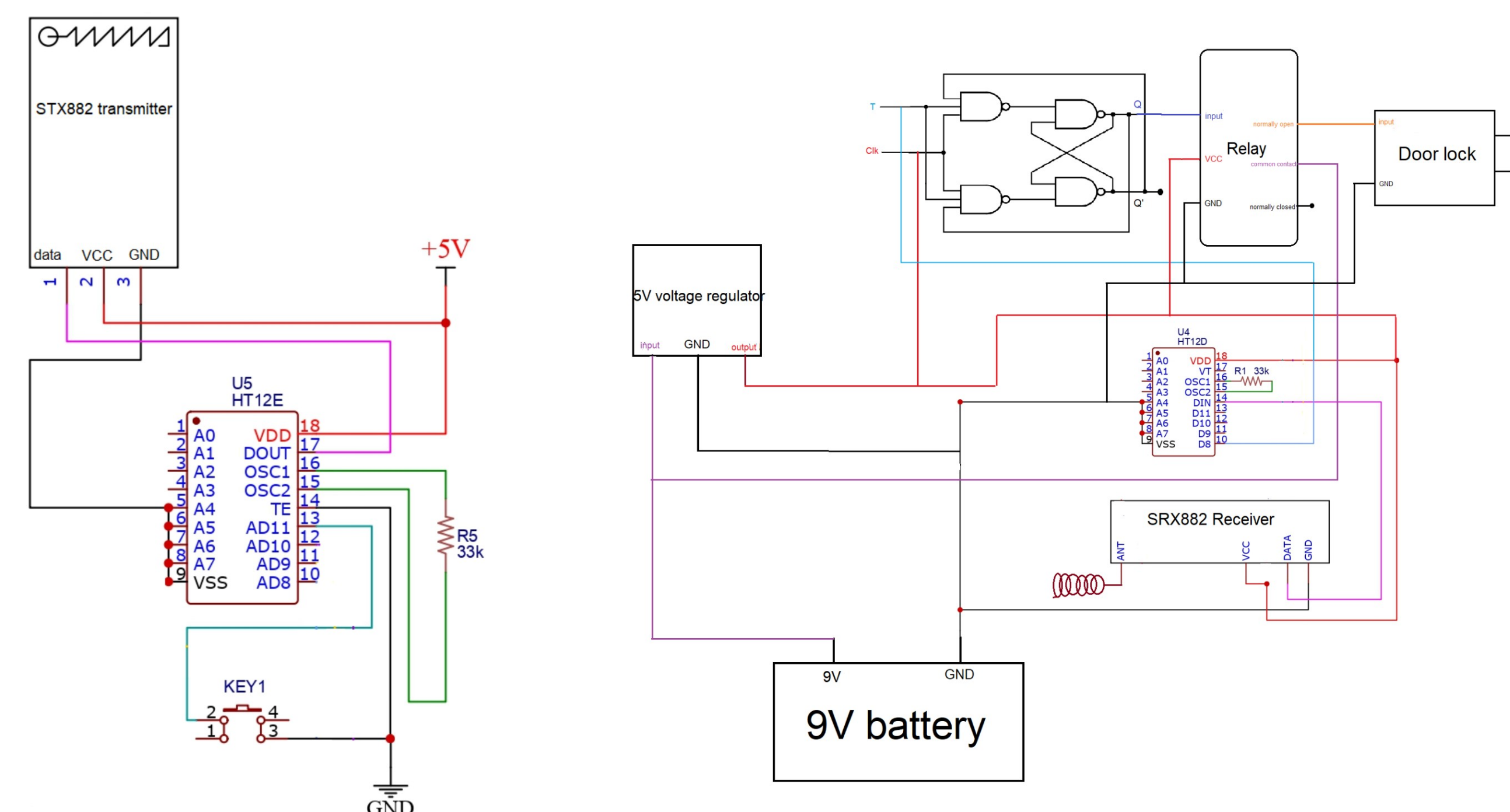
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## PIN DIAGRAM OF (a) Encoder IC (b) Decoder IC (c) 5V regulator IC



## CIRCUIT DIAGRAM OF DOOR LOCK (a) Transmitter part (b) Receiver part



## WORKING

A message signal is encoded using Encoding IC (IC-HT12E) to be transmitted by a transmitter and then further received using receiver that is operating at 433MHz frequency. This signal is decoded on the receiving end using Decoder IC (IC-HT12D). The decoded signal controls a latch circuit which in turn controls a MOSFET that runs the solenoid door lock.

## APPLICATIONS

A proper working powerful remote controlled door lock can be used anywhere for security purposes. They can be used in offices, banks, glass doors of malls shopping complexes and also in homes. The remote control door lock has proved its special usefulness during corona pandemic when people were afraid to touch door knobs in public places. A remote control door lock ensures that the operator doesn't have to touch the door to lock or unlock it. Another advantage of a remote control door lock is you can sleep in peace without worrying about getting up and going to open the door since you can control the door lock from your bedroom itself!

## REFERENCES

- 1) <https://patents.google.com/patent/US6005306A/en>
- 2) [realtimebiometric.in/remote-door-lock-system.html](https://realtimebiometric.in/remote-door-lock-system.html)

## UNDER THE KIND GUIDANCE OF PROFESSORS

1. DR. Tapan Jain
2. DR. Sushmita Dandeliya
3. DR. Girish Ghivela
4. DR. Rashmi Pandhare