

```

#include <Keypad.h>

const byte ROWS = 4; //four rows

const byte COLS = 3; //three columns

char keys[ROWS][COLS] = {

  {'1','2','3'},

  {'4','5','6'},

  {'7','8','9'},

  {'*','0','#'}

};

byte rowPins[ROWS] = {5, 4, 3, 2}; //connect to the row pinouts of the keypad

byte colPins[COLS] = {8,7,6}; //connect to the column pinouts of the keypad

Keypad keypad = Keypad( makeKeymap(keys), rowPins, colPins, ROWS, COLS );

// end of keypad settings

// start of relay settings

const int relayPin[]={9,10,11,12, 13, 14, 15, 16}; // output pins where 8 relays will be connected

String relayNames[] ={"CH1", "CH2","CH3","CH4","CH5","CH6","CH7","CH8"}; // Just put name for 8 relays

// do not change lines bellow

int pushed[] ={0,0,0,0, 0,0,0,0}; // status of each buttons

int relayStatus[] ={HIGH,HIGH,HIGH,HIGH, HIGH,HIGH,HIGH,HIGH}; // initial status of relay

// end of relay settings

void setup(){

  Serial.begin(9600);

  for(int i=0; i<8; i++)

  {

    pinMode(relayPin[i], OUTPUT); // set relay pins as output

    digitalWrite(relayPin[i], LOW); // initial relay status to be OFF

  }

}

```

```

void loop(){
    int val;

    int knum;

    char key = keypad.getKey();

    // just print the pressed key
    if(key && key != '*' && key != '#' && key != '0' && key != '9' ){
        knum = (int)key-49;// convert char to integer (one less)
        if(knum>=0 && knum<8){
            //Serial.println(knum);

            if(relayStatus[knum] == HIGH){
                pushed[knum] = 1-pushed[knum];

                delay(50);

            }// if

            controlRelay(knum);// turn relay ON or OFF
        }
    }else{
        val = LOW;
    }

    if(knum>=0 && knum<8){
        relayStatus[knum] = val;
    }

    delay(50);
}

// loop end

void controlRelay(int number)
{
    if(pushed[number] == 1)
    {
        digitalWrite(relayPin[number], HIGH);// Turn ON relay
        delay(64);

        digitalWrite(relayPin[number], LOW);
    }

    else{ }
}

}

//controlRelay end

```