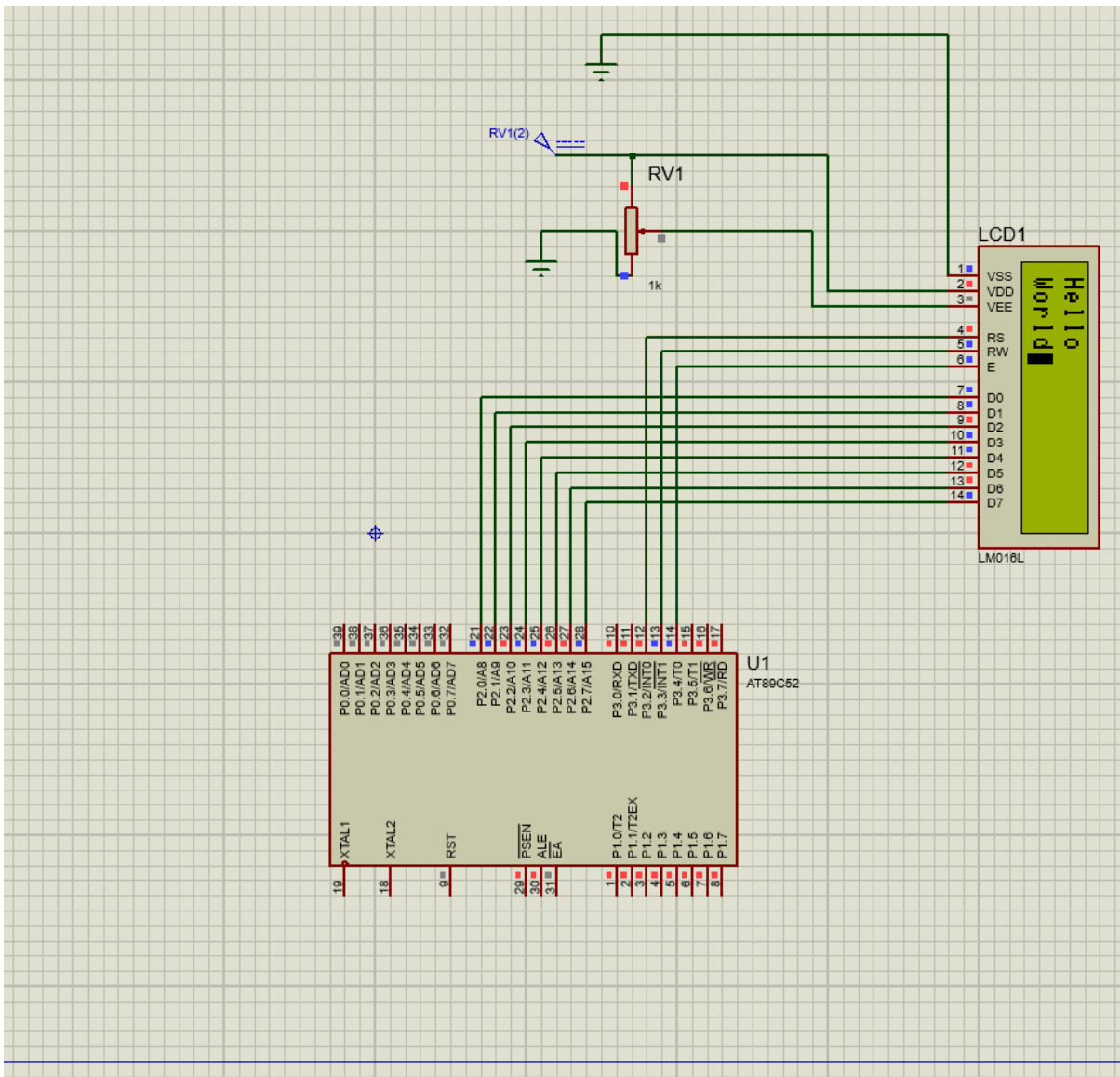


OUTPUT:



Code:

```
#include <reg51.h> // Header file for 89C52
// Lm016L
//Control Signals for LCD
sbit RS = P3^2;
sbit RW = P3^3;
sbit EN = P3^4;

#define LCD_PORT P2

// Delay function in milliseconds
```

```

void delay(unsigned int time)
{
    unsigned int i, j;
    for(i=0; i<time; i++)
        for(j=0; j<1275; j++);
}

// Send Command to Lcd

void sendCommand(unsigned char command){
    LCD_PORT = command;
    RW = 0;
    RS = 0;
    EN = 1;
    delay(1);
    EN = 0;
}

// send data to lcd to display
void sendData(unsigned char dat){

    LCD_PORT = dat;
    RW = 0;
    RS = 1;
    EN = 1;
    delay(1);
    EN = 0;
}

// initialize lcd
void init(){
    sendCommand(0x38); //2 lines ,5x7
    delay(12);
    sendCommand(0x0F); //display on,cursor on
    delay(12);
}

void run(char* message1,char* message2){
    unsigned short int i;
    while(1){
        sendCommand(0x01); //clear screen
        delay(10);
        sendCommand(0x80); //1st line
        delay(10);
        i=0;
    }
}

```

```
        while(message1[i] != '\0'){
            sendData(message1[i]); //send Data
            i++;
            delay(30);
        };

        i=0;

        sendCommand(0xC0); //2nd line
        delay(10);

        while(message2[i] != '\0'){
            sendData(message2[i]); //send Data
            i++;
            delay(30);
        };

    }

}

void main() {
    init();
    run("Hello", "World");
}
```

CODE Timer

#include <reg51.h> // Header file for 89C52 Timer

```
// Define segment LEDs
sbit LED0 = P0^0;
sbit LED1 = P0^1;
sbit LED2 = P0^2;
sbit LED3 = P0^3;
sbit LED4 = P0^4;
sbit LED5 = P0^5;
sbit LED6 = P0^6;
sbit LED7 = P0^7;

// Define control pins for the 7-segment displays
sbit CON0 = P2^2;
sbit CON1 = P2^3;
sbit CON2 = P2^4;
sbit CON3 = P2^5;
sbit CON4 = P2^6;
sbit CON5 = P2^7;

unsigned int noOfTimes = 20;
unsigned char partOfDay = 11;
unsigned char time[] = {2, 7, 0};

// Digit patterns for a common cathode 7-segment display (0-9)
unsigned char digits[] = {
    0x3F, // 0
    0x06, // 1
    0x5B, // 2
    0x4F, // 3
    0x66, // 4
    0x6D, // 5
    0x7D, // 6
    0x07, // 7
    0x7F, // 8
    0x6F, // 9
    0x40, //:,index 10
    0x77, //index 11 ,A
    0x73 //index 12,P
};

void delay_three_ms(){
    TH1=0xF4;
    TL1=0x48;
    TR1=1;
    while (TF1 != 0);
```

```

    TR1=0;
    TF1=0;
}

// Delay function
void delay_ms() { //default 50ms
    TL0 =0x00;
    TH0 =0x4c;
    TR0 =1;
}

void isr_timer() interrupt 1 {
    delay_ms();
    if(noOfTimes == 0) {
        noOfTimes = 20;
        time[2]++;
        if (time[2] < 60) return;
        time[1]++;
        time[2] = 0;
        if (time[1] < 60) return;
        time[1] = 0;
        time[0]++;
        if(time[0]<12) return;
        time[0]=0;
        partOfDay = partOfDay==11 ? 12 :11;
    }else{
        noOfTimes--;
        return;
    }
}

void init(){
    IE = 0x82;
    TMOD =0x01;
    delay_ms();
}

// Function to display a digit on a specific 7-segment display
void display_digit(unsigned char digit, unsigned char position) {
    // Clear all control pins
    CON0 = 0;
    CON1 = 0;
    CON2 = 0;
    CON3 = 0;
    CON4 = 0;
    CON5 = 0;

    // Output the segment data

```

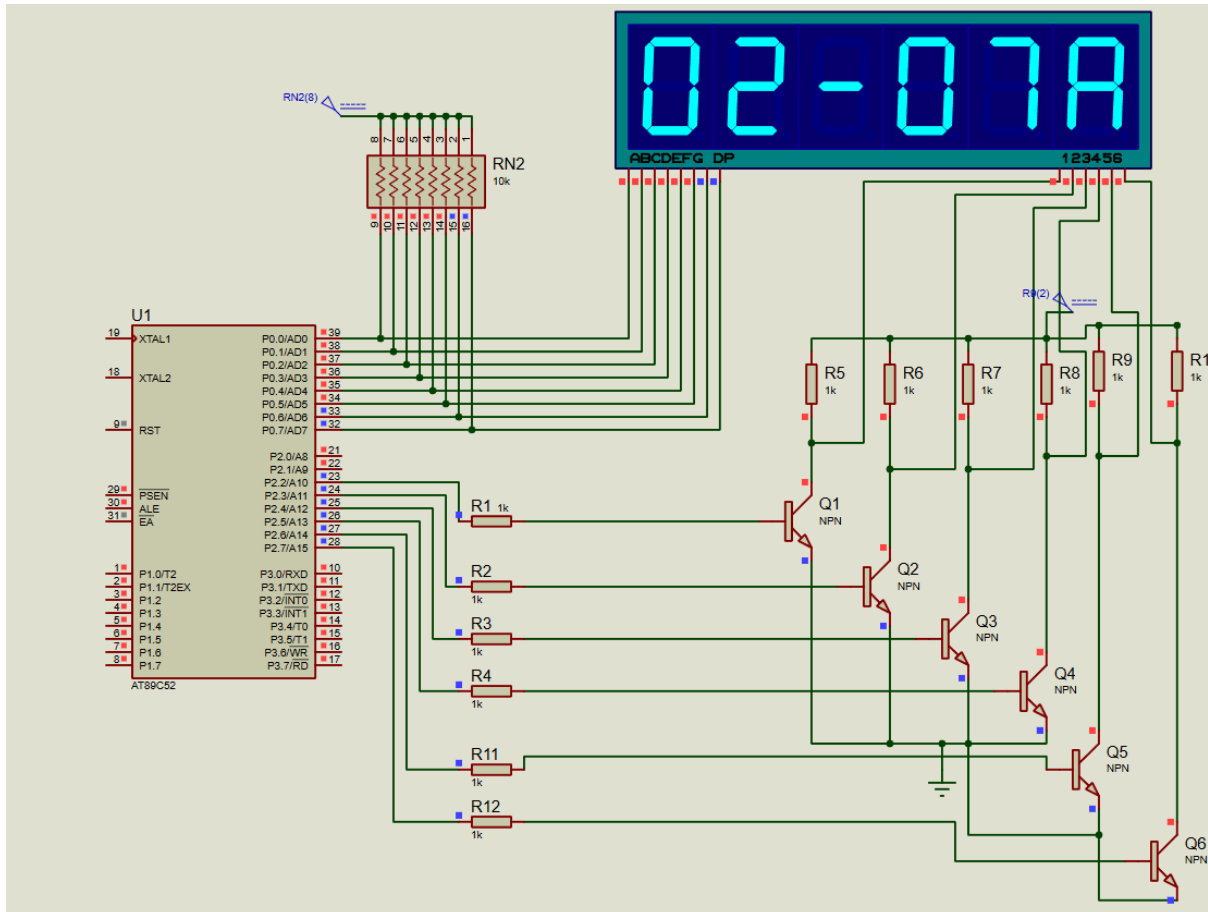
```
P0 = digits[digit];

// Activate the selected display
if (position == 0) CON0 = 1;
if (position == 1) CON1 = 1;
if (position == 2) CON2 = 1;
if (position == 3) CON3 = 1;
if (position == 4) CON4 = 1;
if (position == 5) CON5 = 1;

delay_three_ms();
}

void main() {
    int i = 80;
    init();
    while (1) {
        display_digit((time[0]/10), 0);
        display_digit((time[0] % 10), 1);
        display_digit(10, 2);
        display_digit((time[1]/10), 3);
        display_digit((time[1]%10), 4);
        display_digit(partOfDay,5);
    }
}
```

OUTPUT



Code:

```
#include <reg51.h> // Header file for 89C52

// Define segment LEDs
sbit LED0 = P0^0;
sbit LED1 = P0^1;
sbit LED2 = P0^2;
sbit LED3 = P0^3;
sbit LED4 = P0^4;
sbit LED5 = P0^5;
sbit LED6 = P0^6;
sbit LED7 = P0^7;

// Define control pins for the 7-segment displays
sbit CON0 = P2^0;
sbit CON1 = P2^1;
sbit CON2 = P2^2;
sbit CON3 = P2^3;

// Digit patterns for a common cathode 7-segment display (0-9)
unsigned char digits[] = {
    0x3F, // 0
    0x06, // 1
    0x5B, // 2
    0x4F, // 3
    0x66, // 4
    0x6D, // 5
    0x7D, // 6
    0x07, // 7
    0x7F, // 8
    0x6F // 9
};

// Delay function
void delay_ms(unsigned int ms) {
    unsigned int i, j;
    for (i = 0; i < ms; i++) {
        for (j = 0; j < 1275; j++);
    }
}

// Function to display a digit on a specific 7-segment display
void display_digit(unsigned char digit, unsigned char position) {
    // Clear all control pins
    CON0 = 0;
```



```

CON1 = 0;
CON2 = 0;
CON3 = 0;

// Output the segment data
P0 = digits[digit];

// Activate the selected display
switch (position) {
    case 0: CON0 = 1; break;
    case 1: CON1 = 1; break;
    case 2: CON2 = 1; break;
    case 3: CON3 = 1; break;
    default: break;
}

// Small delay for persistence
delay_ms(1);
}

void main() {
    unsigned char year[] = {2, 0, 2, 5}; // Digits of the year 2025

    while (1) {
        // Display each digit on the corresponding 7-segment display
        display_digit(year[0], 0); // Display '2' on the first display
        display_digit(year[1], 1); // Display '0' on the second display
        display_digit(year[2], 2); // Display '2' on the third display
        display_digit(year[3], 3); // Display '5' on the fourth display
    }
}

```

OUTPUT:

