Embedded Systems Report
DAY 1 and 2
LED Blinking

M. VENKATA TEJA
BU21EECE0100106

➢ Learning Objective:

❖ To learn how to blink LED using embedded C programming language using Keil uVision LDE and Proteus Simulation on 8051 microcontroller.

➢ Input and Output:

- **Input:**

❖ Two switches (sw1 and sw2) are used as inputs to control the LEDs.

- **Output:**

❖ The output is the state of the LEDs connected to port P1 of the microcontroller, which changes based on the switch inputs.

➢ Logic:

❖ The program initializes the microcontroller and enters an infinite loop (while(1)).

❖ The states of the switches (sw1 and sw2) are checked using conditional statements (if-else).

❖ Different patterns are output to port P1 depending on the combination of switch states:

❖ If both switches are off (sw1==0 && sw2==0), port P1 outputs 0x00.

❖ If sw1 is off and sw2 is on (sw1==0 && sw2==1), port P1 alternates between 0xA0 and 0x00 with a 50 ms delay.

❖ If sw1 is on and sw2 is off (sw1==1 && sw2==0), port P1 alternates between 0x0B and 0x00 with a 50 ms delay.

❖ If both switches are on (sw1==1 && sw2==1), port P1 alternates between 0xCD and 0x00 with a 50 ms delay.

➢ Results:

❖ The LEDs connected to port P1 will light up in different patterns based on the combination of switch states.

❖ The specific patterns for the given combinations are:

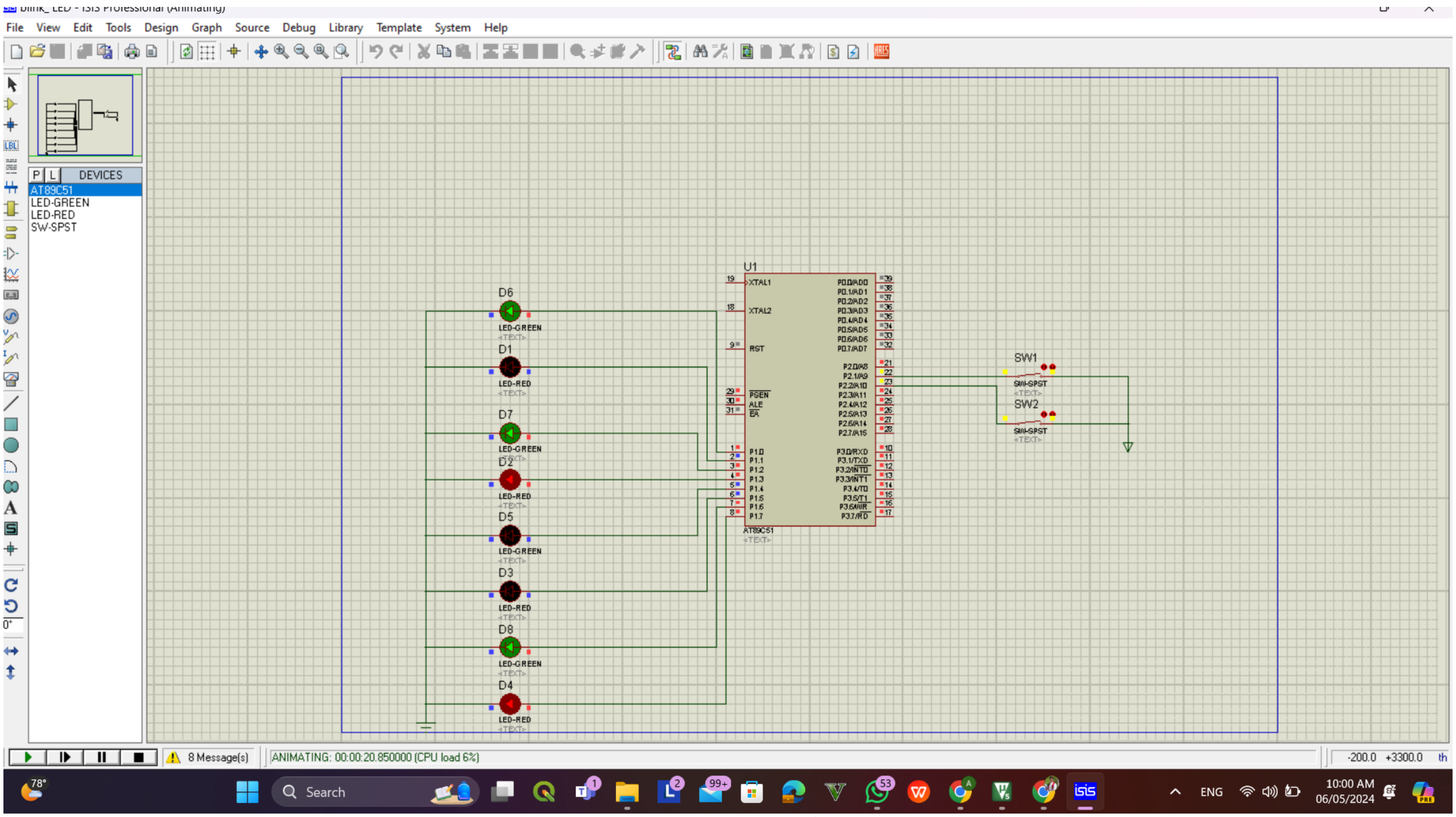
❖ All LEDs off when both switches are off.

❖ A specific pattern (0xA0 or 0x0B or 0xCD) displayed when one or both switches are on, alternating with all LEDs off with a 50 ms delay.

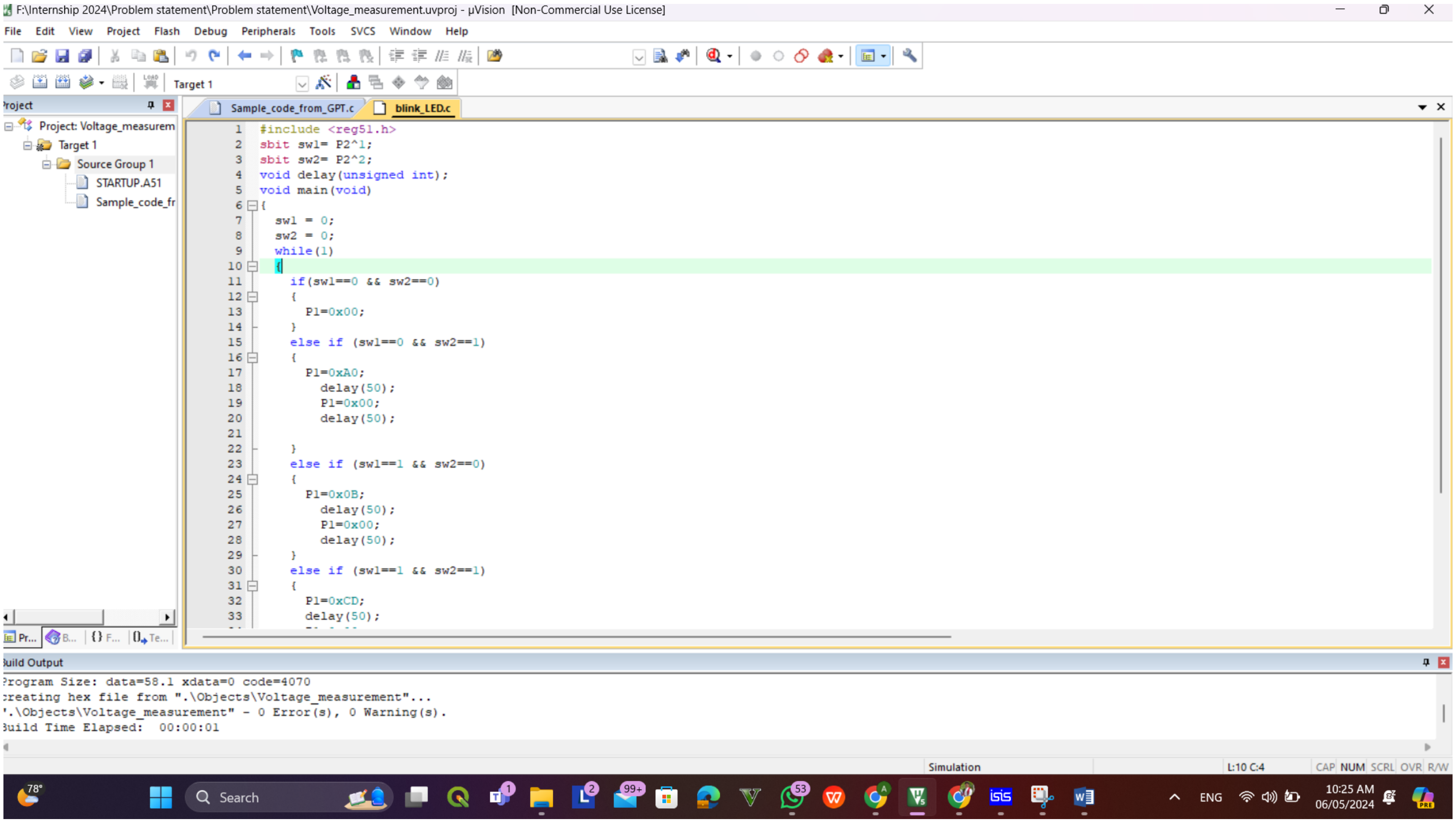
Embedded Systems Report
DAY 1 and 2
LED Blinking

M.VENKATA TEJA
BU21EECE0100106

➢ Screen Shots:


blink_LED - ISIS Professional (Animating)
File View Edit Tools Design Graph Source Debug Library Template System Help
P L DEVICES
AT89C51
LED-GREEN
LED-RED
SW-SPST
U1
AT89C51
D6
D1
D7
D2
D5
D3
D8
D4
LED-GREEN
LED-RED
SW1
SW2
SW-SPST
XTAL1
XTAL2
RST
PSEN
ALE
EA
8 Message(s)
ANIMATING: 00:00:20.850000 (CPU load 6%)
-200.0 +3300.0

Proteus Simulation


F:\Internship 2024\Problem statement\Problem statement\Voltage_measurement.uvproj - µVision [Non-Commercial Use License]
File Edit View Project Flash Debug Peripherals Tools SVCS Window Help
Target 1
Project: Voltage_measurem
Target 1
Source Group 1
STARTUP.A51
Sample_code_fr
Sample_code_from_GPT.c
blink_LED.c
Build Output
Simulation
L:10 C:4
CAP NUM SCRL OVR R/W

```c
#include <reg51.h>
sbit sw1= P2^1;
sbit sw2= P2^2;
void delay(unsigned int);
void main(void)
{
  sw1 = 0;
  sw2 = 0;
  while(1)
  {
    if(sw1==0 && sw2==0)
    {
      P1=0x00;
    }
    else if (sw1==0 && sw2==1)
    {
      P1=0xA0;
        delay(50);
        P1=0x00;
        delay(50);

    }
    else if (sw1==1 && sw2==0)
    {
      P1=0x0B;
        delay(50);
        P1=0x00;
        delay(50);
    }
    else if (sw1==1 && sw2==1)
    {
      P1=0xCD;
      delay(50);
```

```
Program Size: data=58.1 xdata=0 code=4070
creating hex file from ".\Objects\Voltage_measurement"...
".\Objects\Voltage_measurement" - 0 Error(s), 0 Warning(s).
Build Time Elapsed:  00:00:01
```

Keil uVision