

ASSIGNMENT 4

1. Write a program to transfer a string of characters continuously on UART interface with polling mechanism.
2. Write a program to print on serial console “Key Pressed” whenever user presses the key using interrupts.
3. Write program for above using Polling.
4. Create a program with the following using interrupts: (use PWM timer concepts for led brightness control)
If 0 is received via UART, the Yellow LED is OFF.
If 1 is received via UART, the Yellow LED glows at half brightness.
If 2 is received via UART, the Yellow LED shines at full brightness.
For any other input, print "ERROR" to the console.
5. Write a code to receive data over UART using DMA and loop back the same data using normal UART transmit in circular DMA mode.
6. Write a code to receive data over UART using DMA and loop back the same data using normal UART transmit in normal DMA mode and make sure data is continuously loop-backed.
7. Write a program to write a string “C-DACBLR” into a memory address 0x100 of EEPROM connected with SPI protocol, then read the value from the same address and display data on Hercules console.
8. Write a program to print all the device IDs connected to a given I2C line.
9. Write a program to get the Temperature from SHT3 sensor connected with I2C Protocol and display values on Hercules console and also if Temperature is greater than or equals to 30 Degrees Red LED should be ON and if Temperature is less than 30 Degrees Yellow LED should be ON.
10. Write a program to get the Humidity from SHT3 sensor connected with I2C Protocol and display values on Hercules console and also if Humidity is greater than 70% Red LED should be ON and if Humidity is less than or equals to 70% Yellow LED should be ON.

Note: Make configurations in .ioc file such that the LEDs should be in OFF state by default

Guidelines for submission of Assignments for microcontroller related programming

- .ioc file, main.c file should be submitted with the file name as Q1.ioc, Q1main.c