Mini40 PIC Microcontroller Training Kit

Module Introduction

2. **Power supply:** The training kit can be powered up using adapter or USB . The supported voltage range is from 7V to 18VDC. An on/off button is used to power on/off the training kit. Whenever the training kit is powered up a LED indicator will on also.
3. **PIC:** A 40 pin IC socket is used to locate 40 pin PIC Microcontroller e.g. PIC16F877A, PIC18F45450 a 20MHz crystal used to operate program in PIC.
4. **Dual DC motor controller:** L293D is used to drive 2 DC motors direction and speed. An additional power supply is required used to driver the motor up to max: 600mA, 32V.
5. **10Amp DC motor driver:** This motor driver is designed using 2 units 5VDC relays. It can control motor forward, reverse and stop. It can drive motor with max 10A and 28V.
6. **Stepper motor driver:** This stepper motor driver can drive a full step / half step stepper motor. It can control 6V stepper motor forwards, reverse and stop through 4 bit signal lines.
7. **Dual 10Amp relay module:** PIC only provides TTL output 5V or 0V. Thus 2 relay modules are added to control high power devices e.g. 240Vac bulb, 24VDC heater on/off. The relay modules support up to 277Vac or 28VDC 10A load. The load can be connected as always on (NC) or always off (NO).
8. **Light sensor:** Light dependent sensor (LDR) is used to detect environment light. It gives 0V to 5VDC analogue output when environment light density changed from bright to dark. The output of the LDR will be connected to PIC analogue input for detection / control.
9. **Temperature sensor:** LM35 temperature sensor is used to detect air temperature from 0C to 150C. Its sensitivity is 1C. A temperature change of 1C will cause LM35 output increase 0.01V. The output of LM35 will be connected to PIC analogue input for detection / control.
10. **8-bit LED:** There are 8 LED used to test PIC digital output. Each LED can on/off independently.
11. **2*16 LCD:** A 2X16 programmable LCD module is a better way for project output. Types of ASCII code can be displayed through the LCD e.g. a-z, A-Z, 0-9. The LCD is black wording with green background light.
12. **External EEPROM:** The internal EEPROM of PIC is limited. This training kit is enhanced with 32Kbytes external EEPROM using 24LC256 serial EEPROM. Through the EEPROM larger amount of data can be stored e.g. password, address, user name, daily temperature.

13. **Serial interface module:** The training kit can interface with computer through serial port (or user can create virtual serial port through USB to RS232 converter. It is available at computer accessories shop). The serial interfacing is bidirectional and its speed can reach up to 115200bps.
14. **Quad push button:** There are 4 push button connectors pull up to 5V and ready to connect to push button. This is to avoid floating state happen for push button input.

System Requirements

Hard disk space	: 3MB	RAM	: 32MB
Processor speed	: 100MHz and above		
Operating System	: Window 95/98/ME, Window XP, Window 2000, Window NT		

Power Supply

Power supply from voltage regulator should be in the range + 7.0V to +18V DC. The **red LED** will be lighted on if the power switch is turned ON.