Familiarization of MCU 8051 IDE

Exp No:1

Aim:

To familiarize with MCU 8051 IDE.

Theory:

MCU 8051 IDE:

MCU 8051 IDE is an integrated development environment for microcontrollers based on MCS-51 intend for Assembly language and C language. This IDE is currently available on GNU/Linux and Microsoft windows.

The MCU 8051 IDE offers:

- A transparent view on the simulated program for 8051
- Easy source code editing even for an user with small knowledge of the assembly language
- User friendly advanced IDE for MCS-51

The Intel MCS-51 is a Harvard architecture, single chip microcontroller series which was developed by Intel in 1980 for use in embedded systems. They have 8-bit ALU, Accumulator and 8-bit registers, 16-bit address bus, Boolean processing engine which allows bit -level Boolean logic operation to be carried out directly and efficiently on select internal registers and select RAM locations etc.

Some of the most important parts of MCU 8051 IDE are:

- Source code editor
- Optimization cable macro -assembler
- Advanced MCU simulator
- Hexadecimal editor
- Interface for hardware tool control plug-ins
- Scientific calculator and specific calculator optimized for 8051

Main Components of MCU 8051 IDE:

Editor: The code editor is featured with syntax highlighting and validation, autocompletion and spell checking for comments, as well as the command line that speeds up the access to various editor options. It also provides a panel showing line numbers, bookmarks, breakpoints and warnings from syntax validator.

Assembler: The assembler is one of the integral parts of MCU 8051 IDE. It is a macro assembler with support for dozens of directives and capable of performing peephole optimizations. Support for peephole optimizations means that the assembler can attempt to optimize the resulting code for higher execution speed and lower size without tempering with its every functionality. Assembler behavior can be configured either globally, using the proper configuration dialog, or locally in source code, by means of assembler directives and control sequences.

Simulator: The simulator is a software component intended for the simulation of the choosen microcontrller in a virtual environment. It allows user to monitor precisely what is happening in the MCU in an exact moment in time,as well as to mdify its components,for instance by altering the value of register,cancelling an interrupt or forcing a subprogram to return.

Scientic calculator: MCU 8051 IDE scientic calculator is implemented as a simple scientific calculator capable of computation in four number system: hexadecimal,decimal,octal and binary, and with three angle units:radians,degree and grad. Integral part of calculator is also a simple tool intented solely for computing preset values for MCU timers.

Hexadecimal Editor: This utility is used here for watching and modifying large blocks of raw data in various memory types of simulated MCU.

Disassembler: This tool can translate once assembled code back to source code.