Objective:
The purpose of this project is to design a microprocessor in VLSI with the intention of integration into the attack robots. The design will begin with a 4-bit processor and if time allows, expand to increase the number of bits. The design will be done in both L-Edit and Mentor Graphics. The amount of labor needed to complete the project in both packages will be compared and analyzed.

This project is intended to be a “race” between the L-Edit and Mentor Graphics software packages. The design will begin as a basic microprocessor, including the ALU, a register bank, basic I/O functions, and memory interfacing.

Input/Output:

![System block diagram](image)

**Input:**
- Instruction Register (IR)

**Outputs:**
- Answer
- Flag Register
- Register View
**Figure 2-1: Overview of system operation**

**Description:**
The instruction register (IR) will be entered from an external source (such as main memory). The IR will contain the opcode as well as data.

The opcode will then be decoded and the desired operation will then be performed. The data to be operated on can either be from registers, from memory, or immediate data (possibly dependent on the operation). The answer will then be written to either a register or to memory. Additionally, any flags may be raised (error, carry, etc), and the registers may be viewed.