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## Glossary

|                     |                                                         |
|---------------------|---------------------------------------------------------|
| MCU                 | Microcontroller Unit                                    |
| <a href="#">RAM</a> | Random Access Memory                                    |
| <a href="#">ROM</a> | Read Only Memory                                        |
| <a href="#">RC</a>  | Resonator Circuit                                       |
| DSP                 | Digital Signal Processor                                |
| PC                  | Personal Computer                                       |
| CISC                | Complex Instruction Set Computer                        |
| RISC                | Reduced Instruction Set Computer                        |
| SISC                | Specific Instruction Set Computer                       |
| CMOS                | Complementary Metal Oxide Semiconductor                 |
| EEPROM              | Electrically Erasable Programmable Read Only Memory     |
| EPROM               | Erasable Programmable Read Only Memory                  |
| OTP                 | One Time Programmable                                   |
| PROM                | Programmable Read-Only-Memory                           |
| UART                | Universal Asynchronous Receiver Transmitter             |
| USART               | Universal Synchronous/Asynchronous Receiver Transmitter |
| SPI                 | Serial Peripheral Interface                             |
| SCI                 | Serial Communications Interface                         |
| I2C                 | Inter-Integrated Circuit bus                            |
| CAN                 | Controller Area Network                                 |
| SAE                 | Society of Automotive Engineers                         |
| A/D-ADC             | Analog to Digital Conversion                            |
| D/A- DAC            | Digital to Analog Conversion                            |
| PIC                 | Personal Internet Communicator                          |
| I/O                 | Input/Output                                            |
| GPR                 | General Purpose Registers                               |
| NIP                 | Next Instruction Pointer                                |

|      |                                   |
|------|-----------------------------------|
| PSI  | Per Square Inch                   |
| BHP  | Brake Horsepower                  |
| TDH  | Total Dynamic Head                |
| GPM  | Gallons per Minute                |
| DC   | Direct Current                    |
| AC   | Alternating Current               |
| JTAG | Joint Test Action Group           |
| OSC  | Organic Semiconductor Center      |
| ARM  | Atmospheric Radiation Measurement |
| ATP  | Advanced Technology Program       |

## Layout of the Thesis

The thesis is organized as follows:

**Chapter 1:** Describes the operation of the Project, the definition and application of the Microcontroller and the features of the circuit .

**Chapter 2:** Describes the Definitions, characteristics, the content and comparisons between the Microcontroller and Microcomputer and common terms related to the Microprocessors and Microcontrollers.

Microcontroller is a computer on a chip that is programmed to perform almost any control, sequencing, monitoring and display function, and the Microprocessor is the integration of a number of useful functions into a single IC package.

**Chapter 3:** Describes the common type of Microcontroller like PIC which are popular Microcontroller are easily programmable chip , Intel Microcontroller and the Basic stamp which is a small computer that are programmed with Parallel Basic program.

**Chapter 4:** Describes the characteristics of the pump, Basic pump operating characteristics, pump purpose and the type of pump like

rotodynamic pump, Turbines pumps and Centrifugal Pump. Describes also the content, and the types of Electrode.

**Chapter 5** Description of the Hardware circuit design, and explains its components, like the Basic stamp II Module, the Zener Diodes.

**Chapter 6:** Explains and program the software programming of the Microcontroller and designs the Flow Chart.

**Chapter 6:** Present the Results, Discussions, Conclusion and the References.