

INNOVATIVE KEYBOARD CONSTRUCTION WITH ONLY ONE INPUT PIN

The project aims in designing a system which is capable of using a single input pin for characters, digits and special symbols which drastically reduces the keyboard size. This system uses a single pin of Microcontroller for having all characters. The efficiency of the micro controller is limited due to its limited input and output pins as well as the available memory within the controller. Due to these reasons the micro processors are having upper hand over the microcontrollers. This is the only disadvantage which is limiting the role of the microcontroller in modern electronics for certain extent. The solution provided in our controller can be used in different applications where there is the necessity of giving multiple inputs in multiple cases.

The micro controller is provided with many features such as SPI, RS232, I2C, PWM, ADC etc. among these features ADC module is used in our project. The ADC module is nothing but analog to digital module which is a very costly module and there will be only one module available in the controller. This is connected to all the ADC pins of the controller and shared by them as per the first call first serve basis.

The ADC module of the controller is connected with a variable resistance which is also called as potentiometer (POT). This POT is capable of varying its resistance with respect to the position of its knob. The input from the user is taken from this knob and this is fed to the controllers ADC pins. The ADC module takes the input from the POT and generates a unique 8-bit equivalent number for each resistance value. The 8-bit number equivalent character given in the Microcontroller is displayed on the LCD. For this the controller is interfaced with the LCD using LCD driver circuitry.

The features of this project are:

1. Decreases hardware complexity.
2. Displays on LCD.
3. Uses only one input pin.

The project provides learning's on this following advancements:

1. Interfacing LCD display.
2. Conversion of AC supply to DC supply.
3. Programmatically initializing the ADC module.
4. Embedded C programming.
5. PCB designing.

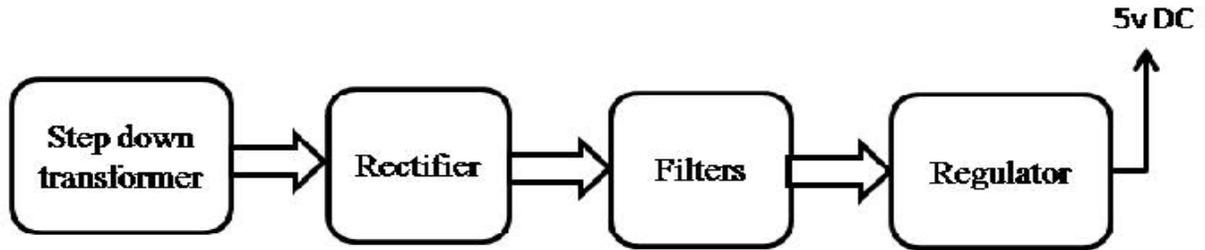
The major building blocks of this project are:

1. Regulated power supply.
2. Potentiometer.
3. Microcontroller.
4. LCD driver.
5. Liquid crystal display (LCD).
6. Crystal oscillator.
7. Reset.
8. LED indicators

Software's used:

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

Regulated Power Supply:



Block diagram:

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