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STUDY AND DESIGN OF PORTABLE OSCILLOSCOPE

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ABSTRACT

This paper presents the design of the portable oscilloscope with its operation, utilization and interfacing technique. This design is suitable to connect a pc or phone with a small jack for voltage signal waveform display . It determine voltage range from 5V to 25V with the input frequency range from 0.1Hz 25kHz. Arduino software is contacted by using programming language C for user to combine the device with a well-designed graphic representation user interface. By changing the values and graphic properties, the users are admit to modify the input signal to required waveform.

1. INTRODUCTION

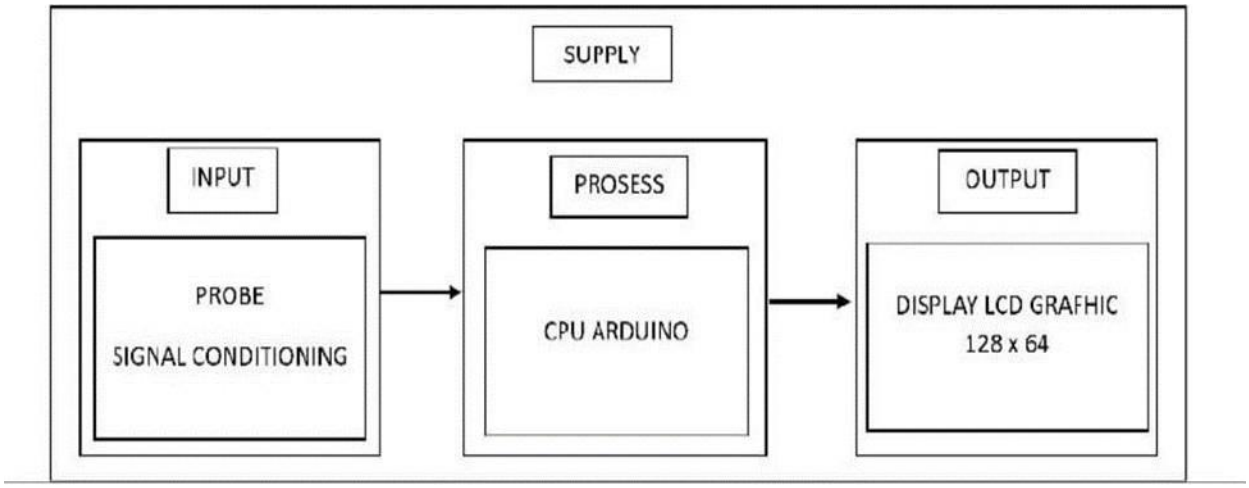
This paper emphasizes on to interface an oscilloscope with personal computer that is to design a hardware card which upon interfacing with the personal computer expansion slot instrumented the PC as an oscilloscope. But the conventional built-in ports are not very suitable to make a PC to be instrumented as an oscilloscope. From the concept of electronic circuitry, interface is the piece of electronic equipment where interaction occurs between two system or processes.
The built-in parallel port is unidirectional. To use the PC as an instrument such as an oscilloscope in this case, it requires a bi-directional port. Though serial communication port is bi-directional, it communicates data through the parallel to serial converter. Due to this serial process, data transfer becomes very slow. So, parallel data transfer is essential to makeit faster. We can also design a bi-directional port.

2. DESCRIPTION OF COMPONENTS:

- LCD (128*4 pixels)
- Arduino uno
- Battery
- Jack
- Variable Resistance (100k)

3. WORKING PRINCIPLE:

This paper emphasizes on to interface an oscilloscope with personal computer that is to design a hardware card which upon interfacing with the personal computer expansion slot instrumented the PC as an oscilloscope. But the conventional built-in ports are not very suitable to make a PC to be instrumented as an oscilloscope. From the concept of electronic circuitry, interface is the piece of electronic equipment where interaction occurs between two system or processes.



This block diagram of portable oscilloscope emphasizes on to interface an oscilloscope with personal computer that is to design a hardware card which upon interfacing with the personal computer expansion slot instrumented the PC as an oscilloscope. But the conventional built-in ports are not very suitable to make a PC to be instrumented as an oscilloscope. From the concept of electronic circuitry, interface is the piece of electronic equipment where interaction occurs between two system or processes.
The built-in parallel port is unidirectional. To use the PC as an instrument such as an oscilloscope in this case, it requires a bi-directional port. Though serial communication port is bi-directional, it communicates data through the parallel to serial converter. Due to this serial process, data transfer becomes very slow. So, parallel data transfer is essential to make it faster. We can also design a bi-directional port.

4. CONCLUSION:

This paper shows the results of research work about the design, elaboration of a portable oscilloscope. It is absolutely essential for an electrical and electronic labs This oscilloscope comes with low price and compact in size also , so it's easy to have a good hand grip around it and it can be easily taken to everywhere. Another advantage of this oscilloscope is that it's lower power consumption. It can easily work with 9V batteries which are easily available in the shops. This paper emphasizes on to interface an oscilloscope with personal computer that is to design a hardware card which upon interfacing with the personal computer expansion slot instrumented the PC as an oscilloscope. But the conventional built- in ports are not very suitable to make a PC to be instrumented as an oscilloscope. From the concept of electronic circuitry, interface is the piece of electronic equipment where interaction occurs between two system or processes. The built-in parallel port is unidirectional. To use the PC as an instrument such as an oscilloscope in this case, it requires a bi-directional port. Though serial communication port is bi-directional, it communicates data through the parallel to serial converter. Due to this serial process, data transfer becomes very slow. So, parallel data transfer is essential to make it faster. We can also design a bi-directional port.

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