



WELCOME
TO OUR PROJECT



DIGITAL STOP WATCH

TEAM MEMBERS



CHARANSAI



TARUNSAI



HEMANTH

INTRODUCTION:

The digital stopwatch we designed is a time-keeping device that is meant to measure the time elapsed from the start to end of any event. The stopwatch has several different functions including pause (which represents both start and stop), reset, write to the LCD, and is able to clear the hundredth of a second output. We used the Nexys4 Artix-7 FPGA Board and HD44780 LCD screen. The board was used to implement our digital stopwatch, and LCD screen was used to display the counter time and the elapsed time. The computing language that we used to write the program is VHDL, which works well to program the FPGA we used. For the functions, we used two switches and two push buttons to allow for user interactions.

ABSTRACT:

This stopwatch project is a software and hardware co-design.

The time will be shown on the FPGA board and on the LCD.

The system will be modeled in VHDL (Very-high-speed integrated circuit Hardware Description Language) and implemented on the Nexys4 FPGA board.

METHODOLOGY:

In this section, we will provide a background on the operation of our stopwatch. The operating principle of each component will be examined.

A. Clock Counter

The Nexys4 board has a 100 MHz internal clock. We needed a clock that would tick every 0.01 seconds so we had to slow down the internal clock by using a clock counter that generates a pulse at this interval. Then, the output of this counter will be connected to the enable of every counter in our data path system. The fastest digit of our counter is the hundredths of a second, which will run for 100 Hz. When we compared the internal clock speed to what we need to the clock digits to display we found that the internal clock is 10000000 MHZ faster ($1 \text{ MHZ} = 1000000 \text{ HZ}$). So, the first thing we needed to do was slow down the internal clock. The solution was to use a clock counter count every 0.01s.

ADVANTAGES:

- Digital electronic stopwatches are far more accurate timepieces than mechanical because of their crystal oscillator timing element.
- Measures elapsed time much more accurately than is possible with the help of pressing the buttons
- Helps recording date and time-of-day functions with the presence of an inbuilt microchip.
- external sensors allow the stopwatch to be stimulated by external events

CONCLUSION:

Stopwatch code in java project a coustom solution for profiting may fit your context either because the application is simple enough you're able to inject stop watch objects, or because your needs for profiting go futher than what your platform provides.