EMBEDDED SYSTEM

REPORT--1

What is an Embedded System?

An embedded system is a microprocessor-based computer hardware system with software that is designed to perform a dedicated function, either as an independent system or as a part of a large system. At the core is an integrated circuit designed to carry out computation for real-time operations.

Embedded system applications range from digital watches and microwaves to hybrid vehicles . As much as 98 percent of all microprocessors manufactured are used in embedded systems.

- One of the embedded system that i have observed in my surroudings is DIGITAL CLOCKS.

DIGITAL CLOCKS:

- How the Digital Clock Works:

An oscillator is needed for any type of clock to work. In a digital clock, this is usually provided by using a crystal which is made out of glass.

As an electric charge passes through the crystal, it will change shape slightly and make a very light sound. The sound which is heard at a regular frequency is then converted into an electronic signal.

By using a series of counters, the oscillations from a 60 Hertz oscillator is reduced to a 1 Hertz oscillation. The first counter will count one for each set of ten oscillations, and the other one will count one for each six “tens” oscillations. This sets up the 1 Hertz signal so that it can pass seconds because the actual definition of 1 Hertz is one oscillation for each second.

The six counter sets up the hours, since it counts for 6 sets of 10 – or 60. Each of the counters is connected to an electronic chip that signals to the display which uses lights to display the time.

This **LED** or LCD light display is called a “7-segment display.” This is because there are seven segments that can light up to display a number. For instance, the number 8 uses all 7 lights. But the light segments are designed to be able to light up in any array to display the numbers 0 to 9.

Users can also reset the time using digital buttons that are installed on the clock in some accessible location. These buttons allow increased frequencies so that the numbers more much faster.

Fig 1:Digital clock