

IMPLEMENTATION OF EMBEDDED SYSTEM USING MICROCONTROLLER BASED TOYS

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ABSTRACT

Embedded systems involve the programming of devices, objects and things to behave in a particular way. In other words, it is the science and engineering of automating hardwares into various functionalities through the use of programmable devices like microcontrollers. The description of the concept of embedded system without practical illustration is mere theoretical abstraction. This paper presents the implementation of an embedded system using microcontroller based toys. Electronic tools and components were selected as appropriate. As described in the block and circuit diagrams, the various components were connected. The other steps included installing the Proteus Software for the design and simulation. In like pattern, the Micro C Programming tools were installed on a Windows 7 Operating System Computer through which the Micro C program was developed and deployed on the PIC. The design was incorporated into cotton material baby toys which produce divers light and sound sequence at the press of certain control buttons. Implementing an embedded system such as developing a baby toy requires the understanding of several design resources including both software and hardware. Circuitry design, fixing, loosening and sowing, soldering of physical components on the xeroboard are the hardware side whereas writing the micro C program and simulating it are the software side. A well designed circuit with therequisite Micro C or Assembly Language program that has been simulated on proteus will behave exactly the same way when implemented in real life provided the selection of components is right. Thus an embedded system is implemented.

Keywords: Embedded systems, microcontroller, toys, circuit, Light Emitting Diodes