FINAL YEAR PROJECT REPORT

DESIGN OF SERVO MOTOR BASED ROBOTIC ARM USING FPGA

In fulfillment of the requirement
For degree of
BE (Electronics)

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ABSTRACT

Enormous progress in the field FIELD Programmable Gate Array (FPGA) has made it easy to design, simulate and synthesize complex digital world applications with greater performance, low cost, low power consumption and a high level of configurability: especially complex DSP applications has been the main beneficiary of FPGA designs. The FPGA designer tends to choose the word accuracy for the realization of a design object of the economic system.

FPGAs have provided a unique and exclusive support for the design of complex digital systems on a single chip with the lowest energy consumption as compared to other technologies such as ASIC.

Because of the considerable progress in the field of FPGA-based applications around the world design, we decided to work in this field for the fulfillment of the requirement of the project last year. With respect, we tried to design, simulate and synthesize the actuator interfacing with the Xilinx Spartan 3E FPGA Development Board. With advice that we can control the angle servo motor and the servo motor speed. Using servo motor we designed the robotic and all movements robot arm can be controlled by servo arm.

The design was programmed using hardware description language (VHDL). The application was simulated, synthesized and tested on a small commercial FPGA using ISE Suite.

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