

# Abstract

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## **R7, Implementation of Field Programmable Gate Array (FPGA) for decision making in portable automatic testing**

This paper proposes a real approve design of inexpensive digital circuit testing environment that simplifies functional testing of Integrated Circuits (IC's) and digital circuits. Using this technique will lead to get the decision making if the module is function properly not. This environment consists of the tester hardware and its corresponding software which enables both engineers and technicians to experience the challenges of testing and debugging without the expense of costly commercial hardware testers. A simple digital circuits is constructed using breadboards, wires, along with Device under Tests (DUT's), then testing using switches and Light Emitting Diodes (LED's). However, advanced digital circuits are often too complex to be tested, and debugged in this way, due to the large amount of states they may require and the larger number of input and output signals compared with simple projects. Moreover the proposed system can be used to test complex digital circuits using image analysis and pattern recognition responses from the DUT compared to the expected stored pattern. Adding to that the system is described as design and implementation of compact, small, cheap for low-power IC\_TESTER and digital circuit tester. By implementation of this technique a digital IC tester sends a sequence of test vectors to a DUT, receives the actual response vectors from the DUT, and compares the responses from the DUT to the expected stored response vectors to determine and decide whether DUT is functioning properly not. So finally we are able to get decision making. Index Terms- FPGA- IC- Signal Processing- Automatic testing -Digital Circuits- Decision making