CHHOTUBHAI GOPALBHAI PATEL INSTITUTE OF TECHNOLOGY

Department of Electrical Engineering

A REPORT

ON

STTP based on "Hands on: Electrical Engineering Applications using Arduino & Proteus"

Title of the STTP	Hands on: Electrical Engineering Applications using Arduino & Proteus			
Organizing Department	Department of Electrical Engineering			
Chief Patron	Dr. D. R. Shah, Provost, UTU.			
Patron	Dr. N. C. Shah, Director, CGPIT.			
Convener	Prof. Rakesh S. Gajre (Head of EC/Electrical Dept.)			
Organizing Secretary	Mr. Ankur Rana Mr. Darshan Vora Ms. Priyanka Patel Ms. Unnati Mali			
Target Audience	Faculty members and industrial person, Research scholars and Engineering students.			
Total Number of Participants	61			
Date of Programme	11 th -15 th September, 2017			
Invited Speakers	Mr. Pritesh Saxena (Assistant Professor, EC Department, SCET, Surat) Mr. Mustufa Surti (Assistant Professor, EC Department, SCET, Surat) Mr. Vishvajit Bakrola (Assistant Professor, CE/IT Department, CGPIT, Bardoli)			

Uka Tarsadia University C. G. Patel Institute of Technology, Bardoli Department of Electrical Engineering					
Schedule of Short Term Training Program on "Hands On: Electrical Engineering Applications using Arduino and Proteus"					
Monday (11/09/2017)	Tuesday (12/09/2017)	Wednesday (13/09/2017)	Thursday (14/09/2017)	Friday (14/09/2017)	
Arduino Basics (Mr. Vishvajit Bakrola) (9.00 AM - 11.00 AM)	Introduction of Proteus simulation software (Mr. Pritesh Saxena) (8:45 AM-10.45 AM)	Working with wireless devices (Mr. Pritesh Saxena) (8.45 AM-10.45 AM)	Interfacing of Motor with Arduino (Mr. Vishvajit Bakrola) (8:45 AM-10.45 AM)	Competition of Proteus Simulation and Arduino	
Break (11.00 P.M11.45 P.M.)	Break (10.45 P.M11.30 P.M.)	Break (10.45 P.M11.30 P.M.)	Break (10.45 P.M11.30 P.M.)	Break (10.45 P.M11.30 P.M.)	
Arduino Programming (Mr. Vishvajit Bakrola) (11.45 AM – 1.45 P.M.)	Applications in Proteus (Mr. Mustafa Surti) (11.30 AM – 1.30 P.M.)	Applications in Proteus (Mr. Mustafa Surti) (11.30 P.M 1.30 P.M.)	Relay operation with Arduino (Mr. Vishvajit Bakrola) (11.30 AM – 1.30 P.M.)	Competition of Proteus Simulation and Arduino	
Break (1.45 PM – 2.00 PM)	Break (1.30 PM – 1.45 PM)	Break (1.30 PM – 1.45 PM)	Break (1.30 PM – 1.45 PM)	Valedictory and Certificate Distribution (1.45 PM - 2.00PM)	
LCD, LED, Buzzer Interfacing with Arduino (Mr. Vishvajit Bakrola) (2.00 PM-3:30 PM)	Lab Session (1.45 PM – 3.30 P.M.)	Lab Session (1.45 PM – 3.30 P.M.)	Lab Session (1.45 PM – 3.30 P.M.)		

Details of the STTP:

Preamble:

Department of Electrical Engineering, CGPIT has organized Short Term Training Programme on "Hands On: Electrical Engineering Applications using Arduino and Proteus" sponsored by Uka Tarsadia University. Total 61 participants participated in this STTP.

The inauguration ceremony of STTP was started by UTU song followed by lamp lighting and prayer to seek the blessings of almighty. As per tradition of CGPIT, all the dignitaries were given a warm welcome and were felicitated to express respect and gratitude towards them for devoting their valuable time and gracing the STTP. The dignitaries that graced the inauguration ceremony of STTP were Dr. N. C. Shah (Director, CGPIT), Dr. Chinmay Desai (Head of Mech/Auto Department, CGPIT), Mr. Vishvajit Bakrola (Assistant Professor, CGPIT) and head of all the departments of CGPIT. The dignitaries and expert were felicitated by the coordinators of the STTP.

Mr. Darshan Vora gave a brief introduction about the STTP. He introduced the experts and expressed his views about the importance of STTP. The H.O.D of electrical department, Prof. Rakesh Gajre gave the welcome speech and gave some brief idea about embedded system and He has also discussed regarding proteus software how it can be useful in electrical engineering. Dr. Chinmay Desai gave some idea regarding controllers which have been recognized as one of the catalysts of technological growth in highly industrial marketing value. The Honourable Director of CGPIT, Dr. N.C. Shah gave the welcome speech. He motivated the students and faculties for participating in technical events like short term training program, STTP, expert talk, etc. He also congratulated and appreciated the efforts made by the Electrical department for organizing such STTP. He shared his knowledge about the necessity of automation in industries in present scenario.

Session Detail:

All the sessions were very interactive and laid a very good impact on the audience.

Day-1: Session-1: Arduino Basics

Session-2: Arduino Programming Session-3: LCD, LED, Buzzer Interfacing with Arduino Day-2: Session-1: Introduction of Proteus simulation software Session-2: Applications in Proteus Session-3: Lab Session Day-3: Session-1: Working with wireless devices

Session-2: Applications in Proteus Session-3: Lab Session Day-4: Session-1: Interfacing of Motor with Arduino Session-2: Relay operation with Arduino Session-3: Lab Session

Day-5: Competition of Proteus Simulation

Arduino Basics

In this session, Mr. Vishwajit Bakrola has discussed about the basics of Arduino. He discussed regarding controller and what is Arduino, how it can be easy. In which he discussed and introduced arduino as an open-source prototyping platform based on easy to use hardware and software and thus easy for beginners, yet flexible enough for advance users. Thus he compared it as a tiny computer system that can be programmed with our instructions to interact with various forms of input and output. He also discussed about Arduino Integrated Development Environment (IDE) which resembles a simple word processor and using arduino programming language various project can be executed.

• Arduino Programming

In this session, Mr. Vishwajit Bakrola discussed about the basics of Arduino Programming Language which is fairly a simple basic structure runs in at least two parts i.e, setup() and loop(), preparation and execution respectively. He discussed in detail regarding how declaration of any variable at the very beginning of the program should be done in setup function and about the core of all Arduino program i.e., loop function which include the code to be executed continuously – reading inputs, triggering outputs.

• LED, LCD and Buzzer interfacing with Arduino

In this session, Mr. Vishwajit Bakrola discussed about how LCD can be configured with Arduino and can use it to display any notification in the hardware implementation. Also he taught how the LED can be light by programming as per the application. He made students to implement the LED connection by giving the command by Arduino to turn them "ON" and "OFF" and also made them display any comment on to LCD.

• Introduction of Proteus simulation software

In this session, Mr. Pritesh Saxena has given brief introduction regarding proteus simulation software. He has discussed in detail feature of this software. He has taught how it can be useful for implementation of different applications. Then he has discussed regarding some real time applications where microcontroller are used. Also he gave some basic idea regarding arduino and proteus interfacing.

• Applications in Proteus

The session was conducted by Mr. Mustufa Surti. He has discussed some applications in proteus with arduino like up counter and down counter, LCD interfacing, Fan control and DC motor control. And all students have implemented these applications in proteus.

• Lab Session

In lab session students had solve their doubts regarding projects.

• Working with wireless devices

The session was conducted by Mr. Pritesh saxena. He has started the session with introduction of all wireless devices which are used in different real time applications. He had explained Xbee module interfacing in proteus. Also He has discussed concept of wireless communication between two controllers via GSM, GPS and Bluetooth. He had taught capacitance measurement and Accelerometer implementation using arduino controller interfacing in proteus.

• Applications in Proteus

In this session, Mr. Mustufa Surti has explained servo and stepper motor implementation in proteus. He had solve all doubts of students regarding their projects. Also he had discussed about different real time applications and how to implement those applications in Proteus software.

• Interfacing of Motor with Arduino

In this session, Mr Vishwajit Bakrola taught use of ultra sonic sensor with arduino and stepper motor interfacing with Arduino. He also explained how steps or angles of rotation are given using arduino in stepper motor and also how motor is rotated clockwise or anticlockwise.

On last day of the STTP competition was held in which they have used the basics and fundamental knowledge of previously conducted sessions and simulate the applications using Arduino and Proteus. And they have implemented different hardware models for the same.

Winner for this competition has been declared by Ms. Juhi Patel (From BMIIT/UTU).

Glimpse of the STTP:



Welcoming Dignitaries



Speech by Dignitaries



Vote of thanks



Technical Sessions



Thanking to Experts



Lab Session



Group Photo of STTP

Feedback Analysis:

Feedback was collected from the participants in last session of the STTP. The overall feedback of the STTP was very positive. Here are some of the feedbacks, which were given by participants.

1) For the given topic, This STTP was



2) Rate overall level of satisfaction with this STTP



3) Do you think it will helpful in your career?



4) Please rate your overall level of satisfaction with the following aspects of STTP.

