

**UNIVERSITY OF LOUISIANA  
AT LAFAYETTE**

**STEP COMMITTEE**

**Technology Fee Application**

Enhancing Automation, Solar Laboratories by Implementing  
Programmable Logic Controllers

**Title**

Dr. G.H. Massiha and Harvey Ozbirn  
**Name (Submitters)**

Department of Industrial Technology and  
the College of Engineering  
**Organization**

---

**Signature of Dean or Administrative Head**

## ABSTRACT PAGE

**Title:** Enhancing Automation Solar Laboratories by Implementing Programmable Logic Controllers

**Date:** 01/15/2020

**Name (Contact Persons):** Dr. G.H. Massiha

**Address:** Department of Industrial Technology, P.O. Box 42972, University of Louisiana at Lafayette, Lafayette, LA 70504

**Phone Number:** 482-5719 **Email:** massiha@louisiana.edu

**Dept/College:** Departments of Industrial Technology and Mechanical Engineering in the College of Engineering

**Number of Faculty Impacted:** 4

**Number of Students Impacted:** At least 600 (graduate and undergraduate students in ITEC, System Tech, MCHE)

### Abstract

Adding Siemen programmable logic controller (PLC) used in in the solar and alternative Industries all over the world to control and collect data will improve UL Solar and Alternative Industrial Technology Laboratory. The Department of Industrial Technology and Mechanical faculty and staff maintain and service this lab. The Siemen PLC system will be placed on a movable cart to take to solar field in the Cajun Blvd. for experiments done by students but it will be stored in room 270 of Rougeou Hall. The system will also be show cased during Earth Day ad Engineering and Technology Week to attract interested high school students to the college of engineering.

There are three courses offered in this laboratory who serve over 600 Industrial Technology (ITEC), System Technology (STEC), and Mechanical Engineering (MCHE) majors undergrad and graduate students in the college of engineering. Funding this project will provide this large pool of students' access to state of the art hardware and software intended to improve their productivity in areas of electrical and programmable control technology. Many energy companies inside and outside USA use Siemen PLC systems. The addition of one extra Siemen automation system will increase the capacity of this laboratory by 10% per laboratory session. In addition, ITEC and MCHE are already using Allen Bradley equipment in this laboratory which many new energy companies use beside Siemen systems. **Our ITEC and MCHE students will become more makeable in the fields of automation technology and engineering if they are more versatile and able to manage multiple systems.**

## **Purpose of Grant**

Automation and alternative energy become an important part of many engineering and technology programs. This is also true for departments within the College of Engineering. Departments within the college provide opportunities for students to learn about a wide array of modern technologies, most of which require the latest technology in hardware and computing to handle the demanding software requirements. The purpose of this grant is to enhance the educational experiences and opportunities of UL Lafayette students by providing an upgrade to the automation technology laboratory located in Rougeou Hall, room 270. Multiple departments that include Industrial Technology (ITEC), System Technology (STEC) and, Mechanical Engineering (MCHE) and the entire College of Engineering students may utilize this laboratory for instruction in automation and alternative energy systems technology and engineering curriculums.

## **Impact on Student Body**

This initiative will greatly impact students in the following ways:

1. Adding the Siemen System make it possible for our students to learn about latest and innovative technology available in software and hardware automation world. The new system can make our students more marketable because companies do not feel that have to train students for new system and save money in long run.
2. The number of students interested in new technologies has increased rapidly. The addition of one additional Siemen automation system will allow the laboratory to accommodate up to 10% more students per laboratory session to respond to the increased demand.

## **B. The Projected Lifetime of Enhancement**

This equipment will be an effective tool in student recruitment and retention that will last a minimum of 4 years.

## **C. Person(s) Responsible for Project**

- a. **Implementation:** Dr. G.H. Massiha, Department of Industrial Technology
- b. **Installation:** Harvey Ozbirn, College of Engineering
- c. **Maintenance:** Dr. Massiha and Harvey Ozbirn, College of Engineering
- d. **Operation:** College of Engineering faculty (Dr. Massiha and Dr. Houston will monitor the operation for this laboratory classroom)
- e. **Training:** N/A

## **Qualifications:**

**Dr. G.H. Massiha** is a professor in the college of engineering. He has more than twenty five years of teaching experience in automation and robotics. His research

specialties include microprocessors; advanced electronics control devices and integrated circuits.

**Harvey Ozbirn** is the computer systems manager for the College of Engineering, and is on the faculty of the Department of Industrial Technology for the past ten years. He holds master degrees in Business Administration and Engineering & Technology Management from the University of Louisiana at Lafayette.

**Timeline:**

**Year 1:**

Order all equipment. Set up equipment.

**Year 2:**

Maintenance & general upkeep

**Year 3:**

Maintenance & general upkeep

**Year 4:**

Maintenance & general upkeep

**Previously Funded STEP Grants**

Dr. Massiha does not have any funded STEP Grants.

**Budget Proposal**

Length of Implementation (In years)	1	2	3	4
1. Siemen Automation	\$8,400	\$0	\$0	\$0
2. Software ( <b>included</b> )	\$500	\$0	\$0	\$0
3. PC	\$1,600			
4. Shipping and Handing	\$250	\$0	\$0	\$0
<b>TOTAL:</b>	\$10,750	\$0	\$0	\$0



# FUTURE TEK, INC.

663 S. Frontage Rd  
Columbus, MS. 39701  
Office 1-888-299-0864 Fax 1-662-328-8584

Quote No. 18/LA/8015

Customize...

## QUOTE

### Customer

Name G.H. Massiha Ph. D. University of LA Lafayette  
Address 241 E. Lewis Street - P.O. Box 42972  
City Lafayette State LA ZIP 70504-5719  
Phone 1-337-482-5719

Date 7/11/2018  
Order No.  
Rep Billy McCord  
FOB Columbus, MS

Qty	Description	Unit Price	TOTAL
1	S1200-EP-SIM Siemens Simatic Step 7-1200 PLC Trainer With Siemens HMI, MecLab Connections And EasyPort Interface (Includes Step 7 Portal PLC Software And EasyVeep Software)	\$8,400.00	\$8,400.00
** This quotation good for 3 months from creation date **			
		SubTotal	\$8,400.00
		Shipping	\$250.00
		<b>TOTAL</b>	<b>\$8,650.00</b>

ATTENTION: G.H. Massiha Ph. D

Quote expires:

SIGNATURE: Billy McCord

*Warranty: One year Workmanship Warranty, Manufacturer's Warranty on Components  
Technical Support: Free 24/7 Technical Support as long as you own the equipment.*