Electronics Engineering

Design Portfolio

Bobby Abraham (B.Tech. in Electronics and Communication)

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Welcome, and thank you for taking the time to view my portfolio. The Goal of this portfolio is to give you a deeper insight into my experiences and skills I have gained over my recent history.

It is my hope that this will allow you to better assess how my skills can be applied to your company.

I would be happy to talk in more detail and can be reached using the contact information at the bottom of this page.

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ABOUT ME

Passion driven engineer, curious about new technologies, proficient in Microcontrollers and Circuit Design. Demonstrated ability to lead different teams in multiple projects. I am driven by the desire to gain knowledge and work hard to achieve the desired goals. Showcased management skills and event management skills. Available for relocation.

Objective: Seeking for the position as an Electronics Engineer within an organization that progresses dynamically and provides me an opportunity to enhance my skills and update my knowledge.

Core Competencies

- Proficient in the use of **MultiSim, Proteus, Keil IDE, Xilinx ISE**
- Proficient in the use of various development boards like **Arduino Uno/Mini, TI Launchpad etc.**
- Proficient in coding using **C, C++**
- Proficient in **Eagle PCB, ExpressPCB, Ultiboard** and **PCB Designing**
- Proficient Knowledge of manufacturing processes and Technologies
- Prominent knowledge in Web Hosting and Web Development

Education and Qualifications

2013-17 Muthoot Institute of Technology & Science (MG University), India
(B. Tech in Electronics & Communication)

MITS is a self-financing college near Kochi. It is eminent since it has been able to be in the top 5 engineering colleges, every year since its inception.

Principal Modules:

Embedded Systems, VLSI, Circuits, Soft Computing, Speech Processing, Analog and Digital Communication, Signal Processing, Control Systems, Electronic Instrumentation

Projects

1. ADS (Accident Dodging System)

ADS made so as to reduce the number of accidents caused; primly through notifying the driver regarding the sign board. By this system, the driver can come to know about different road conditions. Also, it will provide a safe distance warning if the vehicle in front is too close to the vehicle. In addition, the vehicle won't start if the driver has consumed alcohol. It will also stop the headlights from being lighted during daytime. Also, it may help to dim the bright beams especially in night rides.

Result: Successful Development of the system was done. If it can be implemented in all vehicles, it could drastically reduce number of accidents. Developed knowledge of various sensors and their interfacing with microcontroller.

2. Design and Implementation of Constant Water Level Fuzzy Logic Controller

This project makes use of MATLAB's FIS Editor to design a fuzzy logic controller, which uses fuzzy logic to control a valve so that a required water level is always maintained in a tank. This system is far superior from conventional PID controllers which are inefficient in case of nonlinear system. The second stage of the project made use of Atmega328, a microcontroller from Atmel to physically implement Constant Water Level Controller using Fuzzy Logic.

Result: Development and Implementation of the system was done successfully. Developed deep knowledge about fuzzy logic and designing of controller.

3. Automatic Room Lighting System

Automatic Room lighting system determines whether there are any authorized people in the room and lights up if and only if there are any. This system used RFID Technology for identification of authorized personnel.

Result: Successfully Development of the system was done. Developed knowledge about RFID Technology being used and also to interface RFID with microcontroller.

4. Smart 2 Wheeler

Using this system, if the two wheeler faces with an accident, the pre-selected contacts including police will be informed automatically through SMS. Also, the vehicle won't start if the helmet is not worn and also if the driver is under the influence of alcohol.

Result: Designing of the system was done. Got to know about GSM Technology being used and also to interface the module of the same with microcontroller.

5. Adaptive Head Light

Headlights of the vehicle adapts to the conditions outside and lights up only if there's low light outside. Dimming of headlight can also be done automatically if two vehicles come opposite to each other.

Result: Implementation of the system was done. Got to know about IR modules being used and also to interface the same with microcontroller.

6. Low Cost Fire Detection and Cooling System

Fire detection and cooling system is a system which detects the presence of fire and informs people around it so that they can safely evacuate that place and cools the place to put down the temperature; all at a very low cost.

Result: Prototype was built and tested.

Publication

1. Constant Water Level Controller using Fuzzy Logic

Water level controller is one of the most important control system used in mechanical and high power industries as water is the main coolant used in these industries. It is necessary to build a constant water level system as the failure of the same may even lead to emergency shutdown of those industries. PID controllers are commonly employed for this purpose but they are not dependable in case of feedback failure. Also, designing of such controllers are complex. Hence a dependable solution needs to be built. A rather new logic, namely Fuzzy Logic may be used for designing the same controller. Fuzzy logic water controller introduces the most cost-effective and reliable water level controller for nonlinear as well as complex systems. Fuzzy logic can be

considered as a powerful tool for solving automation tasks. This paper focuses on the software implementation of constant water level controller using Mamdani type fuzzy logic controller and testing the system for various inputs using the FIS Toolbox included in MATLAB.
Link

Workshops Attended

- 'Raspberry Pi' conducted by Electronics For You TECHCenter
- 'Metabotics Workshop' by Roxent Technologies in association with ACT IIT Kharagpur
- 'Arduino Programming' conducted by SenseAI
- 'PCB Designing' by Grey Technolabs

Activities

- Founding and Current President of Illuminati, ECE Association of MITS
- Student Coordinator, Ragnarok, TechFest conducted by Dept. of ECE, MITS
- Conducted Arduino workshops for engineering students
- Committee Member of MITS Innovation Centre
- Active member of Mathematics Club
- Active member of Eco Club
- Mozilla Firefox Campus Ambassador

Achievements

- Best Participant at Raspberry Pi Workshop conducted by EFY Tech Center
- Participated in the Finals of Rush Hour of Pragyan 2016 at NIT Trichy
- Selected to the Second Round of ARM Design Contest 2016
- First Prize for Blueprint of Ingenium 2k16 at MITS
- First Prize for Electronics Quiz and Word Hunt of Dhruva 2k15 at Christ Knowledge City
- Second Prize for Quest of Bharatham 2k15 at FISAT

Interests

- Development Boards
- Electronic Gadgets

Industrial Exposure

Inplant Training

- BSNL, A Govt. of India undertaking company
- All India Radio, Trivandrum

Industrial Visit

- Keltron, Electronics company under Govt. of Kerala
- Cochin Naval Base, Kochi

Professional Affiliations

Member: IEEE, ACCS