



Arjun Bhusal

Electrical Engineer

Passionate in embedded system design and automation

Work Experience

Lecturer

Korea Nepal Polytechnic Institute

January 2020 - Present

Lumbini Engineering College

September 2019 - Present

Electrical Engineer

KNPI Production Unit

February 2021 - Present

Embedded System Engineer

Future Lab Nepal

January 2018 - September 2018

Robotics Club Member

Robotics Club of Kathmandu Engineering College

November 2013 - August 2017

Education

Bachelors in Electrical Engineering

Kathmandu Engineering College, Tribhuvan University

2013 - 2018

Skills

PCB Designing

Embedded System Design

PLC

Robotics

Prototyping and Fabrication

Languages

English

Nepali

Hindi

Reference

Er. Achyut Raj Timilsina
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Experience as Trainer

2-Days Training on Motor Control Using PLC

Target Students: Students Pursuing Diploma in Electrical and Electronics Engineering

Objective: To operate Motor in Forward and Reverse Using PLC
To Start Motor with Start/Delta Starter Using PLC

Outcome: Students learned to make the ladder diagram for motor control application
Students got hands-on experience with PLC



7-Days Training on Programming ARM Cortex-M Series Microcontroller

Target Students: Students Pursuing Bachelor Degree in Electronics and Communication Engineering in Thapathali Campus

Objective: To make student familiar with ARM architecture
To make student familiar with bare metal programming
To implement STM32F1 board in projects

Outcome: Students learned ARM architecture
Students learned bare metal programming
Students made projects using STM32 Blue Pill and got hands-on experience with ARM Cortex-M3 Microcontroller



5-Days Training on PCB Designing With Eagle

Target Students: Students Pursuing Bachelor Degree in Electronics and Communication Engineering in Thapathali Campus

Objective: To make student familiar with Schematics and PCB Layout
To make student familiar with PCB fabrication process

Outcome: Students learned schematics and PCB layout designing using Eagle Software
Students designed and fabricated linear power supply circuit



3-Days Training on Basic Electronics and Motor Control

Target Students: Students Pursuing Bachelor Degree in Electrical Engineering and Electronics and Communication Engineering in Kathmandu Engineering College

Objective: To make student familiar with soldering and prototyping techniques
To make student familiar with motor driver circuit

Outcome: Students got hands-on experience with soldering
Student learned and made projects using 555 timer IC
Students learned H-bridge circuit



Project Portfolio
Arjun Bhusal
Passionate Electrical Engineer

Design and Fabrication of Dot Matrix Display Board
(2015-2017)

Objective

To design the dot matrix display board from scratch

Responsibility

Schematics and PCB Designing

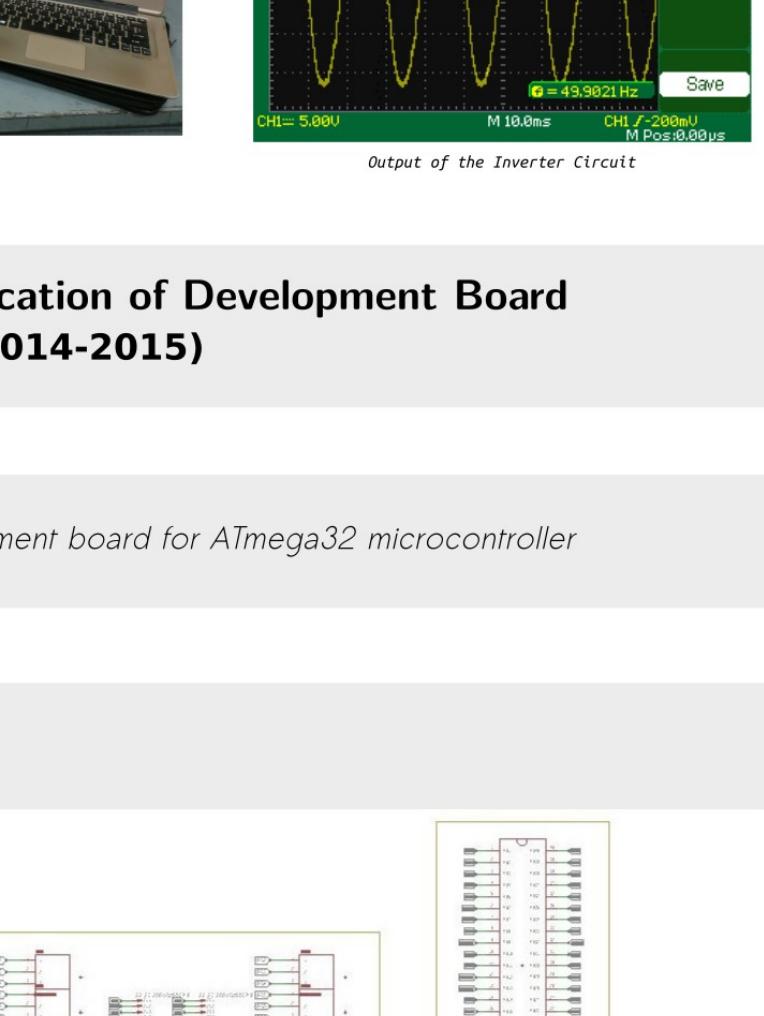
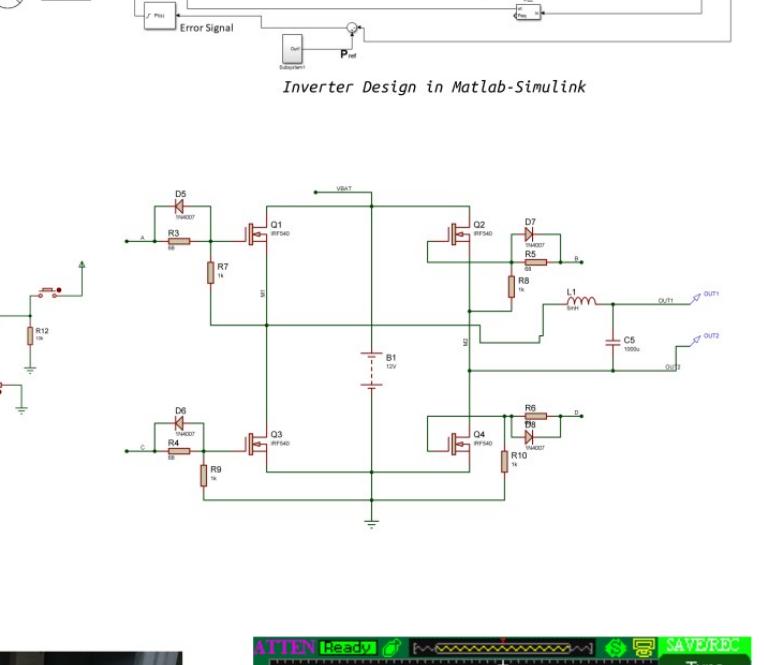
Interfacing the Display Board with Microcontroller



Two individual PCB were made for driving a led matrix of 16 by 16 leds. One PCB consisting of SN74343(latch IC) and transistor served as a data and current source for leds. Other PCB was for sinking the current from leds. For the purpose ULN2003 IC with current sinking capability was used.

Seven 16 by 16 led dot matrix display board were attached in an aluminium frame. For each dot matrix module two PCB board source and sink were used. The board was controlled from 8-bit ATmega32 microcontroller. Power was supplied to the board from Battery via DC Buck Converter.

The multiplexing technique was used to save resources and power.



Design and Fabrication of Grid Tie Inverter
(2016-2017)

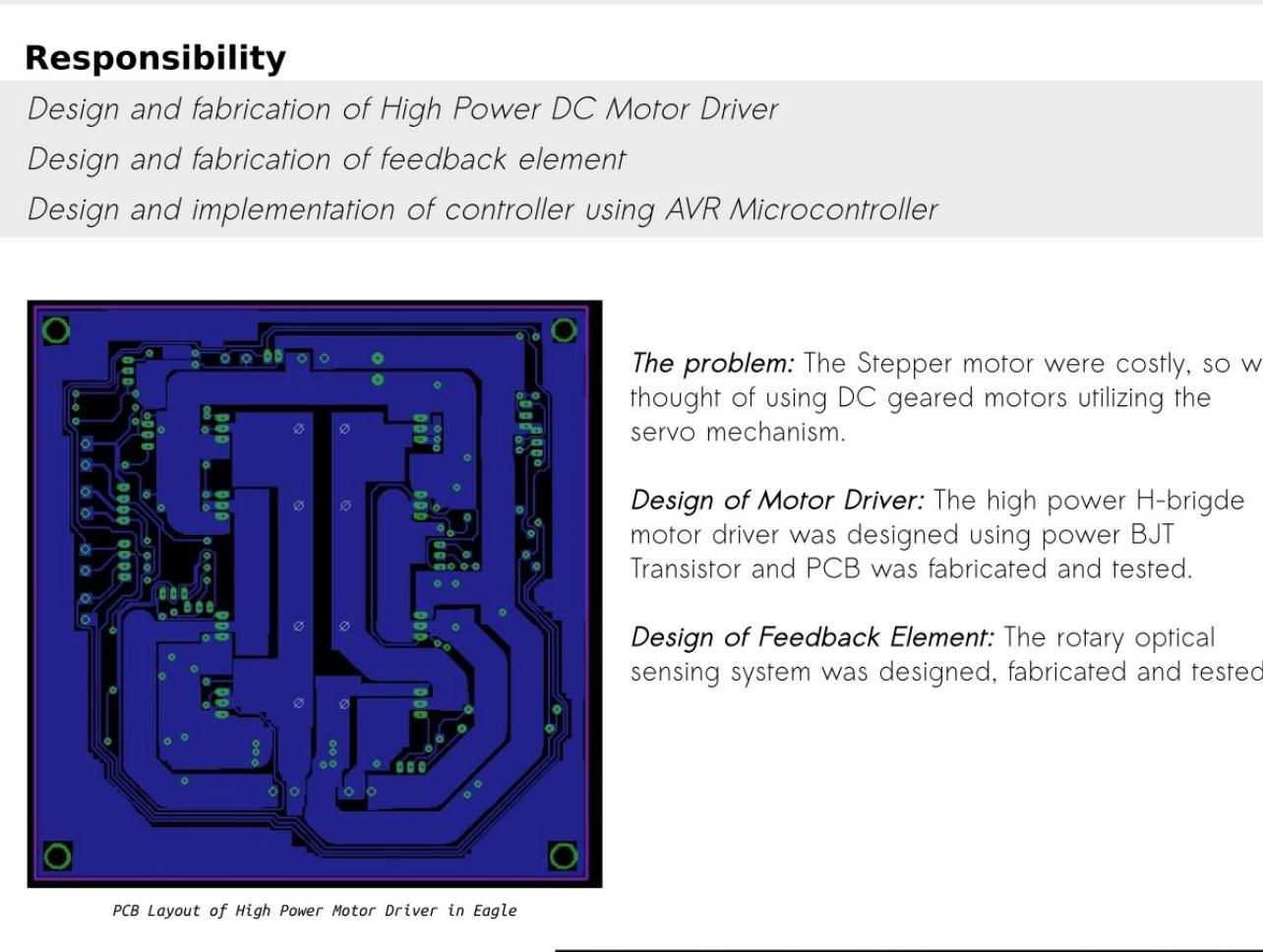
Objective

To design, simulate and make prototype of grid tie inverter for battery storage system

Responsibility

Design and fabrication of the inverter circuit

Implementation of the control scheme using AVR ATmega32 microcontroller



Design and Fabrication of Development Board
(2014-2015)

Objective

To design and fabricate the development board for ATmega32 microcontroller

Responsibility

Schematics and PCB Designing

Fabrication of the circuit board

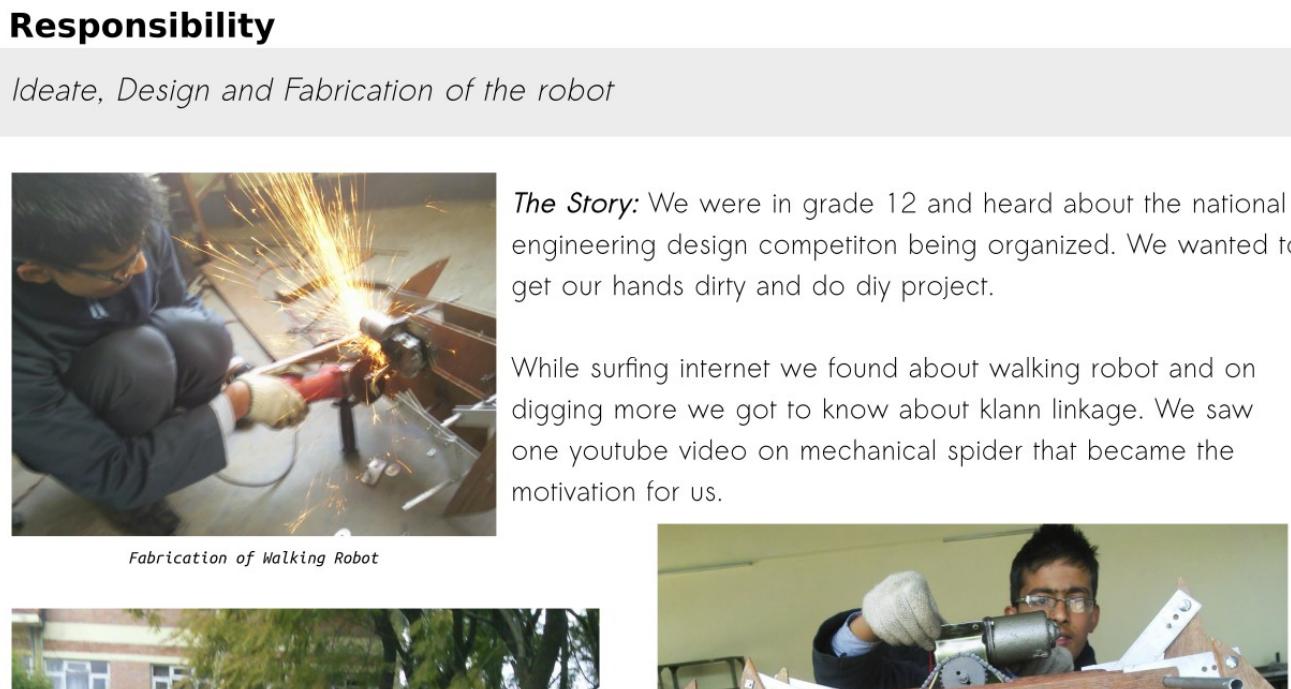


The Development Board: The development board was for ATmega32 microcontroller. The USBasp based microcontroller programming circuit was included in the board. The buck converter was used for regulated power supply. Terminal connector were used for easy and robust connection with sensors and actuators.

The Problem: The Stepper motor were costly, so we thought of using DC geared motors utilizing the servo mechanism.

Design of Motor Driver: The high power H-bridge transistor and PCB was fabricated and tested.

Design of Feedback Element: The rotary optical encoder system was designed, fabricated and tested.



The Story: We were in grade 12 and heard about the national engineering design competition. We wanted to get our hands dirty and do our project.

While surfing internet we found about walking robot and on digging more we got to know about klan linkage. We saw one youtube video on mechanical spider that became the motivation for us.

The Learning: Since robot was made from motor having different rpm, I got an opportunity to have hands on experience with electronics.

Controlled the rpm of motor from PWM signal. I realized the necessity of learning microcontroller based design.

Design and fabrication of Motor Driver and Controller for CNC Machine
(2014-2015)

Objective

To design and fabricate High Power Motor Driver and Controller for CNC Machine

Responsibility

Design and fabrication of the controller circuit

Design and implementation of controller using AVR Microcontroller

The Problem: The Stepper motor were costly, so we thought of using DC geared motors utilizing the servo mechanism.

Design of Motor Driver: The high power H-bridge transistor and PCB was fabricated and tested.

Design of Feedback Element: The rotary optical encoder system was designed, fabricated and tested.

The Story: We were in grade 12 and heard about the national engineering design competition. We wanted to get our hands dirty and do our project.

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The Learning: Since robot was made from motor having different rpm, I got an opportunity to have hands on experience with electronics.

Controlled the rpm of motor from PWM signal. I realized the necessity of learning microcontroller based design.

Fabrication of robot for National Robotics Competition
(2013-2014)

Objective

To fabricate robot for sumo robot wrestling.

Responsibility

Design and Implementation of the controller circuit

Design and fabrication of the robot

The Problem: We were on budget so got second hand motor from Kawaad. We got two motors with different rpm. We had to drive the robot on straight line with two motors of different rpm.

The Controller Circuit: We used 555 timer circuit to generate the PWM signal. This PWM signal was fed to power transistor for driving the motor with higher rpm.

Using the PWM technique we were able to rotate the robot in either direction and drive the robot on straight path.

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While surfing internet we found about walking robot and on digging more we got to know about klan linkage. We saw one youtube video on mechanical spider that became the motivation for us.

The Learning: Since robot was made from motor having different rpm, I got an opportunity to have hands on experience with electronics.

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Fabrication of Spider Robot For National Engineering Design Competition
(2012-2013)

Objective

To fabricate a walking robot that can be used for exploring dangerous and rough areas.

Responsibility

Design and Fabrication of the robot

Design and Implementation of the controller circuit

The Story: We were in grade 12 and heard about the national engineering design competition. We wanted to get our hands dirty and do our project.

While surfing internet we found about walking robot and on digging more we got to know about klan linkage. We saw one youtube video on mechanical spider that became the motivation for us.

The Learning: Since robot was made from motor having different rpm, I got an opportunity to have hands on experience with electronics.

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