AMRUTHA K N

Senior Hardware Design Engineer, Master's in Power Electronics

@ amruthakn2@gmail.com +91 9980823383 Bengaluru in www.linkedin.com/in/amruthakn96

WORK EXPERIENCE

Hardware Design Engineer

Larsen and Toubro Technology and Services

23/09/2021-Present Mysuru, karnataka

- Direct involvement in all hardware design activities including system architecture, circuit analysis / modeling / simulation, components selection.
- **Elevator sensor board design** - An sensor board and modules interface with STM micro controller, for condition based monitoring of elevator, Door, Motor, Cabin and trapped Passenger.
- **Elevator Auto Dial-er board** - Redesign of an elevator auto dial-er board is used has communication gateway between elevator cabin and elevator monitoring call center.
- **SMPS Power supply design** - An 220V AC to 48V DC – 6A and 220V AC to 30V DC – 5.3A Isolated DC to DC Converters for Industrial applications and design documentations.
- **Low side switch redesigned** Formulating the new solution for the obsolescence Management of specialized IC's by providing the new design for there replacement.
- Develop complete schematics, Bill of Material, Power consumption documentation,Hardware design documentation.
- Work on converting prototype designs to production designs including creation of DFM material such as detailed purchase and assembly BOM, assembly instructions,Management of lead time issues by alternate suggestion for prototype building.
- Evaluate customer and internal requirements and propose electronics hardware solutions.

Assistant Professor

The National Institute of Engineering (NIE)

01/10/2019-31/08/2021 Mysuru, karnataka

- Subjects taught:
- **Basic Electrical Engineering** - Transmission and distribution of electric power,Analysis of DC and AC circuits, Electrical machines, Electrical safety and wiring.
- **Field theory** - Static electric and Magnetic fields.
- **Linear Integrated Circuits** - Op-Amps as AC and DC amplifiers, Signal Generators, Filters, Voltage regulators.
- **DC Machines and Transformers**- DC motor and Generators, Losses in Machines, Characteristics.
- **Process Control and Instrumentation** - Analog and Digital Signal Conditioning, Sensors, Controller principles
- **Micro Electro Mechanical Systems(MEMS)** -Working Principles of microsystems, Materials used and Manufacturing of Microsystems.

EDUCATION

Master's in Power Electronics

The National Institute of Engineering

2017 - 2019 Mysuru,Karnataka

Courses taught: Power Electronics; Control System; Wireless Sensor Networks; Process Control and Instrumentation; Embedded System
CGPA: 8.97/10

B.E in Electrical and Electronics Engineering

Visvesvaraya Technological University

2013 - 2017 Bengaluru, Karnataka

Percentage: 75.68 %

ABOUT

" Senior Hardware design engineer, currently working in LTTS in the field of Power electronics, focused on designing Elevator sensor module and elevator auto dial-er board, Low side switch drivers,SMPS Design,Reverse engineering for on the shelf products, Design Optimization, Interfacing of SPORT,SPI, UART,ADC,CAN and I2C communication with micro controller and DSP.Interfacing of Various sensors, SDRAM,CODEC(AC'97/HDA/PSTN), FLASH with DSP. Open to work on Low power electronics boards interfaced with required sensors for industrial/consumer application.I am Confident enough to adopt any relevant job in the field of power electronics and its applications. "

TECHNICAL STRENGTH

Altium designer	●●●●○
Cadence Allegro	●●●●○
PSIM	●●●●○
PSPICE	●●●○○
MATLAB and Simulink	●●●○○
Keil μ for 8051μc	●○○○○
C/C++	●●○○○
Auto CAD	●●○○○
MS Office	●●●●○
Latex	●●●○○

MOST PROUD OF

Gold Medalist
1st rank with gold medal in M. Tech, CAID examination held during 2019

Tech expression runner up
Runner up in Tech expression for innovative ideas and solutions conducted in LTTS global in 2023

PUBLICATIONS

IEEE International Conference on Recent Trends on Electronics, Information and Communication Technology (RTEICT)2019
Title:"Aircraft Engine Fuel Flow Prediction and Health Monitoring System"

PROJECTS UNDERTAKEN

Projects Handled

LTTS, Mysore, India

- **Sensor board design for faults detection in elevator/escalator/moving walk**: Designed Sensor module with ST micro controller with various sensors interface.
  - Worked on CAN, UART, I2C SPI interface.
  - Worked on accelerometer Current, Pressure, ToF,Thermal, Proximity Microphone sensors interface with microcontroller.
- **Elevator Auto Dial-er board**: Redesign of an auto dial-er board in elevator.
  - Worked on CODEC, SDRAM,FLASH interface with DSP.
  - Worked on SPI, SPORT, I2C, AC'97 link and HD audio link interface with DSP.
- **SMPS Power supply design**: 220V AC to 48V DC – 6A and 220V AC to 30V DC – 5.3A: A Power supply design was developed based on the requirement with PFC monitoring with high efficiency and variable DC output using interfaces like I2C,UART,SPI.
  - Half bridge LLC topology with PFC booster circuit for 100W-500w range.
  - primary and secondary side driver circuit.
  - Auxiliary Power supply design for SMPS.
  - Designed for replacement of Low side switch driver IC L9823 by discrete approach.
  - Cost analysis and obsolesce management for gas analyser and Refrigerator power board.

M.Tech Thesis

Aircraft Engine Fuel flow parameter prediction and health monitoring system

01/11/2018 - 30/05/2019 NAL, Bengaluru, India

- A model was been proposed to to obtain the performance deterioration of aircraft engine.
- Multiple Regression Analysis (MRA) with Artificial Neural Network (ANN) and Data clustering with fuzzy logic approach is performed for the prediction of fuel flow parameter and compared for best performance.
- Modeling of Engine Health Monitoring in MATLAB SIMULINK for neural Networks and FIS Predicted Fuel Flow was proposed.
- Comparison of Prediction Accuracy of ANN and FIS models was observed.

LANGUAGES

Kannada
English
Hindi

STRENGTHS

Hard-working | Decision Making | Motivator & Leader | Amity & Optimist | Dedicated and Punctual | Target oriented | Dedication | Flexibility and Adaptability

REFEREES

- **Mr. McNally Bethapudi**
  @ mcnally.bethapudi@ltts.com
  Architect, Building Technology Smart Infrastructure,LTTS, Mysuru, India
  Jyothy Institute of Technology, Bangalore, India
- **Dr. Gurumurty S R**
  @ gurumurthysr@nie.ac.in
  Professor, Dept. of EE Engineering, The NIE, Mysuru, India
- **Mrs. Radha R**
  @ radha@nie.ac.in
  Associate Professor, Dept. of EE Engineering, The NIE, Mysuru, India