Saravana Shankar B

Email: saravanashankarb@outlook.com| LinkedIn: https:// www.linkedin.com/ in/saravanashankar - | Ph + 91-7299999110

SKILLS

Programming	Python (NumPy, Matplotlib), PLC Ladder Logic.
Hardware Development	Electronics Debugging & Prototyping, Embedded Development (Arduino, Teensy, ESP32, Raspberry Pi)
Software Applications	MS Office, CAD (AutoCAD), KiCad (PCB design), SQL Servers, Arduino IDE, STMcube IDE.

PROFESSIONAL EXPERIENCE

Position:

Electrical & Electronics Engineer

Solinas Integrity Pvt. Ltd (Center for Non – Destructive Testing)

IIT- Madras Research Park

July 2019 – Feb 2021

- Developed a sensing, control Units & Performs troubleshooting activities on a variety of highly complex electrical and electronics assemblies for Remotely Operated Pipe monitoring rover and Tether Management Systems (TMS).
- Developed odometry with data logging solution using inertial sensors & motor encoder for pipeline quality assessment.
- Performed preliminary Data Analysis work using logfiles of image/video data and acoustic data from pipeline assessment with precise localisation
- Lead field operations for monitoring, inspecting and finally creating preliminary reports of Pipeline condition along with client engagement.
- Assisted in client acquisition and achieving a work order for a repeating client related to water lines from TWIC, Voyants solutions, Mahindra world city & Metro water board.

Position:

Junior Engineer,

Kontact Engineers.

Oct 2018 – May 2019

- Developed temperature control system for solar thermal exchange recovery system
- Designed a sterling engine-based energy harvesting system to utilize thermic fluid heated by solar heat evacuator tube

Position:

Project Intern,

Eltech Engineers Madras Pvt Ltd.

Dec 2017 – May 2018

- Performed design, simulation & validation of Low-Tension star-delta power supply panel
- Performed supply sourcing of LT components through interaction with customers and prepared the preliminary general arrangement and wiring diagram using AutoCAD.
- Learnt industrial standards and approaches towards safety measures, preventive maintenance and customer satisfaction factors, etc.

INDUSTRIAL PROJECTS

Smart Ball

Solinas Integrity Pvt. Ltd.

- Smart ball is a passively propelled spherical robot which traverses inside the pipeline to detect leaks with the help of Acoustic sensors with Position tracking sensors.
- Developed a Prototype unit using a STM32 Cortex-M4 MCU interfaced with a digital MEMS microphone array and I2C based 9-DoF Inertial Measurement Unit and temperature sensor.
- Developed firmware for sensor data logging using SD code storing audio signals as WAV files and IMU signals as CSV files synchronized using an RTC
- Performed preliminary spectral analysis of audio log files to identify auditory anomalies associated with pipeline leakage

Endobot

Solinas Integrity Pvt. Ltd.

- Endobot is a tethered robot that can travel inside the pipeline and perform Visual Inspection, Corrosion quantification [HSV thresholding] and Wall thickness measurement
- Designed and developed a H- bridge MOSFET console for controlling the robot, Kinetis Cortex microcontroller interfaced with Hall effect Encoder, IMU with RTC Unit and Data Logging system.
- Developed a single power supply system with reverse polarity operating protection for a DC motor and RF 433MHz controller for Z -Laser & LED module controlling.
- Developed a winch mechanism with Rotary encoder, power supply unit & protection device for retrieval and monitoring of robot within pipeline.

Hybrid Industrial Solar Thermal Heater ***Kontact Engineers***	• The aim of the project is to create Thermal energy up to 200 degrees by using Renewable energy resource. To create the Thermal energy more improvised Evacuated Tube with patented & trademarked by Kontact engineers • Advanced software with miniaturized embedded architecture to make the system to operate with Hybrid Induction heating system. • Developed a Temperature monitoring system and manual Operating system with Aerogel Insulation and super hydrophobic coating.
Star-Delta starter ***Eltech Engineers Madras Pvt Ltd.***	• Choosing the components as per the customer needs. Preparing estimation for all the LT components, busbar and Manpower. • Drawing the preliminary General Arrangement and wiring diagram in CAD. After assembled Earth Electrode testing, circuit breaker testing and Ductor testing for all the electrical components.

ACADEMIC PROJECTS

Environment Recognition & Safety Protocol for Fire fighters **Bachelors Thesis** **April 2017**	• Microcontroller: STM32 based Particle Photon Interfaces:MQ-2 Gas Sensor, MLX90614 (IR temp), ADXL335 (Accelerometer), SSD1306 (HUD display), MAX30100 (Ear SpO2, Heart Rate). • An Augmented Reality based smart connected helmet for fire fighters to sense and display the data about the interior conditions such as temperature, gas concentration. • We also provide network-based alerts to the nearby firefighter when another is in danger.
Thermal Vision & Gas Sensor based Rover **April 2017**	• Microcontroller: BCM2832 based Raspberry Pi Interfaces: FLIR One Thermal Camera, MQ2 Gas Sensor, PWM Rover Control. • A semi-autonomous miniature multispectral sensor equipped tank-based rover that can monitor heating of valves using a thermal camera and monitor gas leaks in Oil & Gas power plants.
Hybrid Cascade Multi-Level Inverter using Renewable Energy Resource **Diploma Thesis** **April 2014**	• A hybrid cascaded multilevel inverter application for renewable energy resources including a reconfiguration technique is developed. • By using the reconfiguration method, the proposed hybrid inverter can improve system efficiency and reliability. • A 3-kW prototype is developed. The switching losses of the proposed multilevel inverter are also investigated. By using the modified PWM technique.

CO-CURRICULAR TRANING

- On – Going course on '**Introduction to Embedded Systems Software and Development Environments**' conducted by Coursera
- Completed course on '**Python**' conducted by Udemy.
- Completed course on '**ROBOTICS**' conducted at Easwari engineering college by EMSOL +Embedded solutions.

EDUCATION

Program	*Institution*	*%/CGPA*	*Year of completion*
Bachelor's Degree: Electrical & Electronics Engineering	Easwari Engineering College	6.01/10	2017
Pre-Degree (TNDTE) Electrical & Electronics Engineering	Panimalar Polytechnic College	83.6%	2014

CORE COMPETENCIES

Hardware: Hardware prototype design & development, Industrial Sensing & logging solutions, Robotics development
Software: Python based datalog analysis, MySQL
Soft Skills & Management: Client handling, Field Operation Management