

Resume

Amarnath Karthic M

Senior Embedded Engineer / Director

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Objective

- To be an expert in embedded intelligent Technology & associated with an organization that gives me scope to update my knowledge and be a part of the team that works dynamically for the growth of organization and gain satisfaction thereof.

Professional Summary

- Pursuing Ph.D., in E&I based on Embedded Systems At **Bharathiar University**, Since 2024.
- Working as **Founder at REDO Skill Maturing Workshop**, Erode (& many places) Since Aug 2018 to till date.
- Working as **Founder / Member at ED'Vision Labs**, Since Aug 2012 to till date.
- Working as **Director at Embuzz Technologies Private Limited**, Coimbatore (& many places) Since Aug 2011 to till date.
- Worked as a Chief Branch Operations for Entire Branches in **Sigmatree Solutions Pvt. Ltd.**, and Senior Embedded Engineer for Software and Hardware Target Application Development in **Sigmatree Technologies India Pvt. Ltd.**, Bangalore Since Aug 2010 to July 2011.
- Over 2 Years of Embedded and Labview field Experience, Currently working as a "Senior Embedded Engineer" for Software and Hardware Target Application Development in **Accent e Technology (P) Ltd.**, Chennai Since May 2008 to May 2010.

Professional Experience

Company	Duration	Designation
REDO Skill Maturing Workshop	May 2020 to till date	Founder / CEO
ED'Vision Labs	July 2012 to till data	Founder / Embedded Engineer
Embuzz Technologies Private Limited	August 2011 to till date	Founder / Director / Senior Embedded Engineer
Sigmatree Solutions Pvt. Ltd.	9 th August 2010 to 20 th July 2011	Chief Branch Operations
Sigmatree Technologies India Pvt. Ltd.	9 th August 2010 to 20 th July 2011	Senior Embedded Engineer
Accent E Technologies Pvt. Ltd.	1 st May 2008 to 31 th May 2010	Senior Embedded Engineer

Professional Skills

Languages and Tools:	Assembly language of (AVR family), Embedded C (AVR family, PIC, ARM 7, 8051, Arduino, Amica), Matlab, uPython, Labview, HTML, VerilogHDL, etc.
Protocol :	SPI, I2C, RS232, CAN, IOT, etc...
Processor and Controller:	ALTERA Cyclone Board, Xilinx Basys Board, ATMEGA AVR series, Arduino, Amica (NodeMCU), PIC, LPC2148, ESP32, ESP Series, Raspberry pi, ARM 7, STM32
Emulator / Simulator :	Arduino IDE, AVR studio, Kiel, WinAvr, Codevision AVR, MP Lab, Micro C, Keil, Spyder, ESPlorer, Arduino IDE, Xilinx IDE Vivado, Quartus II, etc.
Operating Systems :	Windows / Ubuntu / Lubuntu / Raspbian
Devices Hands On :	Various Sensors / WIFI / GSM / RFID / Zigbee / Bluetooth / WIFI CAM / Web servers / Displays / Actuators / GPS / LIFI / Data Science Concepts / Artificial Intelligence Ideas, Many more...

Educational Qualification				
Degree	Name of Institution	University	Year	Percentage
PHD E&I*	Bharathiar University, Coimbatore	Bharathiar University	2024	
MBA HR*	Madurai Kamaraj University, Madurai	MKU, Madurai	2010	63%
MSc., Elec & comm.	Muthaiyammal College of Science and Arts, Rasipuram	Periyar, Salem	2008	65%
BSc., Elec & comm.	SP college of Arts and Science, Madurai	MKU, Madurai	2006	65%
XII	Guhan Matriculation Hr. Sec. School, Madurai	Matriculation	2003	65%
SSLC	Guhan Matriculation Hr. Sec. School, Madurai	Matriculation	2001	65%

Key Projects Handled

Project Title #1: PUVA (Psoralen Ultraviolet A Treatment)

Client: Derma India, Chennai

Team Size: 7

Skills: Embedded Assembly language, Microcontroller ATMEGA8515 and AVR Studio

Organization: Accent E technology

Description: The objective of the project is a type of photodynamic therapy used to treat skin conditions such as psoriasis, vitiligo, and skin nodules of cutaneous T-cell lymphoma. The patient receives psoralen (a drug that becomes active when it is exposed to light) by mouth or applied to the skin, followed by ultraviolet A radiation. PUVA therapy may increase the risk of getting skin cancer. Also called psoralen and ultraviolet A therapy with help of AVR software..

Responsibilities: Software Design, Coding and Testing

Project Title #2: SMS based Industrial Automation

Client: Rajaram Engineering Corporation P Ltd

Team Size: 4

Skills: Embedded Assembly language, Microcontroller ATMEGA8535 and AVR Studio

Description: The objective of the project is to switch on / off the external device connected to micro controller via relay circuit for a particular time through sms. Also monitor the industrial parameters and send sms to status owner mobile number.

This project uses AT MEGA 8535 micro controller, 2 lines LCD, and GSM Modem, buzzer and a relay circuit (which is used to connect the external appliances).

The design of a stand-alone embedded system that can monitor and control appliances locally using built-in input and output peripherals is presented. Remotely, the system allows the owner monitoring and controlling the industrial appliances via the mobile phone set by sending commands in the form of SMS messages and receiving the appliances status. The GSM modem provides the communication media between the owner and the system by means of SMS messages.

Responsibilities: Software Design, Coding and Testing

Project Title #3: Countdown timer

Client: Derma India, Chennai

Application: Bio Medical

Team Size: 6

Skills: Embedded Assembly language, Microcontroller ATMEGA8535 and AVR Studio

Description: The objective of the project is to switch on the external device connected to micro controller via relay circuit for a particular time. Also when the power is switched off then the time should be retained as soon as the power is supplied.

This project uses AT MEGA 8 micro controller, seven-segment display 4 digits, and clock display, small segment display, a buzzer and a relay circuit (which is used to connect the external appliances) and a 4-key keypad. Using the keypad, time is set on the seven-segment display. Pressing the start key will switch on the external device through the relay. Countdown timer start to run and will get displayed. As soon as the time reaches zero the external device, which was connected will get switched off. Or else in case of an interrupt in the power supply, then in that case, the final data was written to the EEPROM location and retrieved as soon as the power is given to the device.

Responsibilities: Software Design, Coding and Testing

Project Title #4: Control System for Baby warmer

Client: Derma India, Chennai

Team Size: 4

Skills: Embedded Assembly language, Microcontroller ATMEGA8515 and AVR Studio

Organization: Accent E technology

Description: This project uses AT MEGA 8515 micro controller. The temperature of baby is continuously sensed using RTD. RTD is interfaced via ADC MCP 3202 through SPI protocol uses 12-bit resolution. Temperature is continuously monitored using a 2- line LCD also the temperature of baby. So, change in the ambient temperature will result in change in heat correspondingly using the UV bulb, which acts as a heater to maintain constant temperature. In this project, each and every component is chosen on the basis that it should work even in high and low temperature ranges.

Responsibilities: Software Design, Coding and Testing

Project Title #5: VENK-75

Client: Spark Controls, Bangalore.

Team Size: 4

Skills: Embedded C language, Microcontroller ATMEGA2560 and WinAVR

Description: The objective of the project is to sense the pole accurately in any rotor coils (12, 14, 16, 18, 20 poles and coil size may vary) and want to stick the paper in to it before insulation automatically. This project uses AT MEGA 2560 micro controller, Feeder Button, Auto manual selector, Start, Index, Cut and Push buttons and mechanical set up with pneumatic piston to apply pressure to cut the paper. The specialty of this product has 0% system error even power shut down. Rotor coil won't get damaged at any part of execution time.

The design of a stand-alone Mechatronics system that can has both manual and auto mode. Normally to do this paper inserting process a manually take 15 minutes for each rotor coil but here we achieved 13 seconds in automatic process.

Responsibilities: Embedded Software and Hardware Design, Coding, Trouble Shooting and Testing

Project Title #6: RFID based Access control system

Client: Fare Deal Trade service company, Madurai

Team Size: 2

Skills: Dotnet (C#), Embedded C language, Microcontroller ATMEGA128 and WinAVR

Description: The objective of the project is to mark the attendance and opening the gate automatically for the registered card holders. This project uses AT MEGA 128 micro controller, 2 lines LCD, and RFID Reader, buzzer and a relay circuit (which is used to connect the external appliances) with PC for attendance.

The design of a stand-alone embedded system that can monitor the access via RFID reader and mark the time and attendance of the person with access door permission system.

Responsibilities: Embedded Software and Hardware Design, Coding and Testing

Project Title #7: Home Security Systems

Client: Mr Krishna Moorthy, Madurai

Team Size: 2

Skills: Embedded C language, Microcontroller ATMEGA16, PIR sensors and WinAVR

Description: The objective of the project is to sense the object moving near by the device. If anything occurs, it will send SMS to the house owner and will alarm the place.

This project uses AT MEGA 16 micro controller, 2 lines LCD, PIR sensors, Buzzer, GSM Modem and a relay circuits (which is used to connect the external appliances).

The design of a stand-alone embedded system that can monitor the movement of the objects in atmosphere reader and intimate if motion occurs to the person who is owner of the home to alert him and alarm to alert the nearby public.

Responsibilities: Embedded Software and Hardware Design, Coding and Testing

Project Title #8: Water Tank Automation

Client: S V Technologies, Bangalore

Team Size: 4

Skills: Testing the code and level sensor designer

Description: The objective of the project is to sense the water flow and switch on the motor. This project uses PIC 16F877A micro controller, 2 lines LCD, Flow, lever and current sensors with a relay circuits.

The design of a stand-alone embedded system that can monitor the level of water, flow from the motor (sump to tank) and current (if over voltage occurs it will trip the circuit). Level will be controlled by the level sensor with

output valve and Flow controlled by the level sensor too, if water flow does not occurs, it will switch off the motor to avoid coil damage.

Responsibilities: Testing Embedded Software and Hardware Design

Project Title #9: Vibration Meter

Client: Aeolous Aerospace Technologies, Bangalore

Team Size: 4

Skills: Embedded C language, Microcontroller ATMEGA 8, Accelerometer, Magnetic Sensor and WinAVR

Description: The objective of the project is to sense the vibration and proximity occurs per second and want to calculate the frequency of the proximity and vibration respectively.

This project uses AT MEGA8 micro controller, 2 lines LCD, Accelerometer, Proximity sensor, Switch.

The design of a stand-alone embedded system that is connected to a switch to set proximity mode and vibration mode. In Proximity Mode the process works like, the object connected to vibration meter is shaken hard a time, and per 1 second, how many times it touches the proximity is measured and formula will be calculated to convert the count to Hz generated. Vibration Mode is accelerometer Z-Axis will be measured, once the object is kept tight and shaken, the object's vibration will be calculated per second and displayed in Hz respectively. The output must be displayed in CRO with a proper sine wave.

Responsibilities: Embedded Software and Hardware Design, Coding and Testing

Project Title #10: Website and Logo design

Client: Antenna Trust, Madurai

Team Size: 5

Skills: Photoshop, Php

Description: Designed logo and website by using Php and Photoshop

Responsibilities: Photoshop design and task splitting and customer interactions

Project Title #11: Smart Shopping Mall Automation in US (Tentative Name)

Client: KLN CE, Madurai

Team Size: 3

Skills: Android, DOTNET, BLUETOOTH, WIFI, RFID technology

Description: The objective of the project is to automate a shopping mall with a new concept, I mean we heard about Kiosk in previous days like that this project has kiosk as well as produce product availability, location and quantity in customer's mobile itself once he enter into the shopping mall and mainly it shows the shortest path and guides the customers to reach the product rake. We made it as a user friendly produce with an economical price.

Responsibilities: Project design mapping and Hardware Guidance

Project Title #12: Milk Vending Machine

Client: Milk Stockiest

Team Size: 2

Skills: Timers, Liquid Solenoids, RFID technology

Description: The objective of the project is to make simple to measure the content of milk and pour it to the client once they show their registered Milk Pass. Milk Pass will be updated and the content of milk pored will be added to his credit list. If that respected credit is paid, then the credit list will be formatted. We made it as a user friendly produce with an economical price.

Responsibilities: Project design mapping , Software and Hardware Development

Project Title #13: Chappathy Ball Cutting Machine

Client: Mr.Aashiq

Team Size: 2

Skills: Proximity, Pneumatic Cylinder, raw material grinding

Description: Dough ball making machine is a highly sought after product in food processing industry that fastens up the process of making dough for chapati, poori and other flat bread in bulk. The machine is easy-to-operate and clean and can be customized to control the size of dough balls as per the requirement. With smooth dough ball cutting and easy-to-integrate mechanism, the machine promises a great boost in productivity of existing operations without hampering current processes. Developed, designed, engineered and produced using high-grade raw materials and latest technology, the machine is an efficient, durable and functional product, essential for every commercial kitchen.

Responsibilities: Project design mapping , Software and Hardware Development

Project Title #14: 3 Component External Wind Tunnel Balances

Client: Aeolus Aerospace Technologies

Team Size: 2

Skills: 3 Component, Lifting, Pitching, Dragging, Data Logging

Description: These balances are designed for use wind tunnels Of high accuracy; they are ideally suited to both undergraduate teaching and post graduate research work. The load sensing elements are high precision. The geometrical construction of the load sensing systems allows the complete separation and independent measurement of the components of Lift, Pitch and Drag with negligible interactions of one component into another.

Responsibilities: Project design mapping , Software and Hardware Development

Project Title #15: Bluetooth Based Device Indoor Automation

Client: Aeolus Aerospace Technologies

Team Size: 2

Skills: MEMs, BLE Modem, Google Voice

Description: This project is done for some clients as well as at our infrastructure too. This is a low cost device (appliances) automation via Bluetooth technology. Here we use android application with switches, voice and MEMS input to activate and deactivate the devices respectively. This system is done for controlling four different devices.

Responsibilities: Project design mapping , Software and Hardware Development

Project Title #16: Flood Alert Voiceover for Ship

Client: FLOTO Tech, Port Blair

Team Size: 2

Skills: ATMEGA, VOICE CHIPS, AMPLIFIERS, SPEAKERS

Description: This project is done for a shipping client. This is a low cost device (appliances) with multiple and complicated voice announcement unit. Here we use embedded c with digital sensors as inputs, voice and indicators input to alert and make aware about flooding respectively. This system is done for more than 12 applications.

Responsibilities: Project design mapping , Software and Hardware Development

Project Title #17: IIOT Production Management System

Client: Garments Factory, Tiruppur

Team Size: 3

Skills: ESP8266, CLOUD, SENSOR TECHNOLOGY

Description: This project is done because, tailers are cheating garment factory owners by not working as per time schedule. They are not completing their targets regularly. To avoid that we fix a device to monitor the working time once the garment factory owner starts that particular machine, once if he stops the machine in between other than break time without any reason, it will definitely shows his instability for the tailer via cloud server.

Responsibilities: Project design mapping , Software and Hardware Development

Project Title #18: Academic Counselling Robot

Client: An Engineering College at Erode

Team Size: 4

Skills: RASPBERRYPI, 3D PRINTING, ASSEMBLING, SERVOS, Etc...

Description: This robot a student counselling robot, it is programmed to answer for all the department related questions and that particular college related questions in voice with an effective manner. This work involves creating an interactive 3D-printed head for college department counseling, powered by Raspberry Pi and Audio AI. The head would serve as a virtual assistant, capable of answering students' questions about the college and its departments. Using a microphone and speaker connected to the Raspberry Pi, the system captures the user's voice, processes the speech into text with AI tools like Google's Speech-to-Text, and responds with pre-programmed answers using Text-to-Speech technology. Custom questions related to admissions, courses, and counseling services can be added to the system. The 3D-printed head can even feature basic movements, like nodding, to enhance interaction.

Responsibilities: Project design mapping, Software and Hardware Development

Project Title #19: Customized VFD for A Chamber

Client: An Engineering College at Coimbatore

Team Size: 4

Skills: VFD Drive programming, Developing, Assembling and Testing process, Etc...

Description: This product focuses on designing a Customized Intelligent Variable Frequency Drive (VFD) for controlling a AC 2 hp motor in a chamber system with heat management. The VFD offers forward and reverse operation, allowing precise control over the motor's speed and direction. Integrated with a blower unit, it helps regulate airflow and temperature within the chamber. The system adjusts the motor's speed based on real-time temperature data, optimizing heat distribution and cooling. This intelligent control ensures efficient heat management, stable chamber conditions, and energy savings, making it ideal for processes requiring precise environmental control, such as in industrial or laboratory settings.

Responsibilities: Project design mapping, Software and Hardware Development

And So Many...

For More Details: (**Refer: <https://www.linkedin.com/in/embuzz-technologies-private-limited-829b74162>**)

Minor Product Works

- ❖ Produced over hundred entrepreneurs and over ten thousand professionals across globe. It is because of "Training is my passion".
- ❖ One of the persons as an Industry expert in panel for BOS (syllabus framing committee) of Sri Krishna College of Engineering and Technology, Bannariamman Institute of Technology, KGISL, VSB Engineering college, Venkateshwara Hi-Tech Institutions, Alameen Engineering College, etc... and also technical adviser for few educational and corporate organizations too. (<http://skct.edu.in/SKCT-ICE/pdf/EABs.pdf>)
- ❖ Maintaining Centre Of Excellence Laboratory for Embedded Systems and IOT at Kathir College Of Engineering, Dheerajlal Gandhi College Of Technology and SNS Institutions and so many, with the first lab proposed at Al-Ameen Engineering College.
- ❖ Value Added Training Programs at various Institutions across South India.
 1. <https://alameen.ac.in/images/certificates/ALAMEENENGINEERINGCOLLEGESSR2017.pdf>
 2. <https://www.vsbec.com/ece/>
 3. <https://www.psnct.ac.in/images/PDF/ssr.pdf>
- ❖ Went as a Guest Speaker for various Academic Institutions as well as Industries across South India and Conducted Technical and Personality development Workshops, Technical / Motivational Speeches / Career counselor for Corporate & Value added Training Programs all around South India regarding on Information Technology, Electronics, Robotics, IIOT, Artificial Intelligence, MATLAB, LABVIEW, Mechatronics, Biomedical Product Making, Avionics and Embedded Systems. Also Conducted Vertical Courses For Few Institution Candidates.
- ❖ Supporting Advanced Products As Well As Academic Projects for various industries and institutes across South India.
- ❖ Solved more than 5000+ IEEE projects for Academic side and our candidates receive atleast one best project award per year for sure.
- ❖ VLSI chip level modular coding
- ❖ Home Automation Using wireless technology
- ❖ Pick and Place Robot (For students)
- ❖ Fingerprint authentication system
- ❖ RFID access card system
- ❖ Temperature sensing Robot
- ❖ Training for Embedded system trainees for various concerns across South India.
- ❖ Water Tank automation for SV technologies, Bangalore.
- ❖ GSM alarm based industrial Hazardous.
- ❖ IOT Based Projects
- ❖ IIOT with Data Science Projects
- ❖ Wifi, Image acquisition, Video acquisition, data logger projects and Products.
- ❖ Hand Sanitizing Machines
- ❖ Automatic Bed Lighter
- ❖ Wireless cam based inspection products
- ❖ Chiller consistency maintenance for injection molding machines
- ❖ Unmanned Septic tank level teller
- ❖ Solar Power Monitoring System With cloud
- ❖ Also Worked as Acting HR more than 30 industries / institutes / Institutions

- ❖ Part of Web Development / Design / Hosting Team, Product Manufacturing and Testing Unit, Recruitment Team as General / Technical Human Resource Includes Career Counselling Too and Handled Including Workshops / Guest lecturers / Motivational Talk / Value added Training / Faculty Development Programs / Hackathons / Professional Training conducted over 300+ industries (some are confidential) / Educational institutions till date.

(M. AMARNATH KARTHIC)