

# MALLAVARAM REKHA

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## Career Objective

A curious ECE Engineer with good Testing background and Microcontroller skills who is determined to stick with his interest and ready to acquire every possible way to learn and expertise in Embedded systems and implement it at the industrial level with proper enthusiasm and utmost sincerity and integrity.

## Academic Details

Post-Graduation Program in Embedded Systems for EV Applications   Skill-Lync	(2022)
B. Tech, ECE, AITS, Tirupati   6.2 CGPA	(2020)
12 <sup>th</sup> (BIEAP), NRI Academy, Tirupati   71.6 %	(2016)
10 <sup>th</sup> (SSC), SREE VIDHYA E.M School, Renigunta   8.0 CGPA	(2014)

## Technical Skills

- **Programming Languages:** Embedded C, C
- **Target Platforms:** 8051, 8085, ATmega 32/328, STM32
- **Prototyping Platforms:** Arduino Nano/ Uno/ Mega,
- **Testing and Debugging:** LDRA Testsuite-TBRUN, TBvision, NI Test Stand
- **Modelling and Simulation Tools:** Control Build, STM32CubeID, Microchip Studio, Arduino IDE, SimulIDE
- **Exposed Standards:** MISRA C

## Experience

### Embedded Software Engineer

#### GlobalLogic (Apr 2024 – Jan 2025)

##### Cruise Control System using Simulink Using PID Controller

###### Description:

Developed a Cruise Control System model using Simulink to regulate vehicle speed and maintain a user-defined set speed. The project involved designing and simulating a PID Controller to continuously adjust the throttle based on real-time vehicle speed feedback. The system ensures the vehicle maintains the desired speed by reducing the error between the actual and target speeds, adjusting for throttle and drag conditions.

Simulink: Modeled vehicle dynamics, throttle response, and environmental factors like drag resistance.

PID Control Design: Implemented a Proportional-Integral-Derivative (PID) control system to optimize speed regulation and minimize steady-state error, overshoot, and settling time.

#### Automatic Gear-Shifting System Using Stateflow

###### Description:

Designed an Automatic Transmission Control System for a vehicle using Stateflow to model and simulate the gear-shifting logic based on speed and throttle input. The project employed Finite State Machine (FSM) principles, with states representing different gears and transitions based on the vehicle's speed and acceleration inputs. Gears and transitions based on the vehicle's speed and acceleration inputs.

Stateflow: Modeled gear-shifting logic with finite state machine representation for multiple gears

Gear Shift Logic: Developed rules for smooth transitions between gears based on speed and throttle thresholds, ensuring optimal engine performance and fuel efficiency.

- Shift up when vehicle speed exceeds set thresholds.
- Shift down during deceleration or lower throttle input.

#### CYIENT Limited (Alstom Transport India Pvt & Ltd):

(June 2022 to June 2023)

#### TCMS Projects (Regional transport Metro): RE-IR

**Role:** Verification & Validation Test Engineer

**Tested Scenarios:** Unit Testing, Functional Testing Integration Testing, Overall Testing L1/L2, Software source code verification, Network Integration Testing

**Tools used:** NI Test Stand (National instrument test stand), Control build, Rational Clear Quest, Beyond Compare Macro-Enabled Excel sheets, Utest, Simulation, E3 viewer, Traintracer, UltraVNC

**Type of Testing:** Black box Testing.

**Description:**

TCMS (Train Control & Monitoring System) is one of the sub-system of the train. It is used to Control, Command and Monitor all of the subsystems such as traction, doors and brakes, Medium and High voltage system, Air compressors, Emergency signaling, coupling and decoupling of bogies etc. & assist the Operations Team, assist the Commissioning & Maintenance Teams by providing status and fault information and enabling built in tests.

**Roles & Responsibilities:**

- Analyzing and review the implementation of software requirement against the SRS/ SWDS/ SwAS/ ADL1.
- Understanding System Level Specification and perform overall Test between Software (MPU) and Hardware.
- Raising the CR (Change Request) for incorrect implementation of logic/Data mismatch and range of data types.
- Carry out the writing the test cases for requirement using Boundary value, Equivalence partitioning and MCDC Testing Techniques.
- Analysis of the code, identifying bugs and Generating Test limitation and SWIDs & follow up with developers.
- Involved in Regression and Retesting.
- Generate Test results and Test Summary reports.
- Providing the reports and synthesis files.
- Preparing for Documents (checklist), Reports (Coverage and html reports) and Scripts (Test script).

## Projects

**Skill Lync Projects.****Development of TFT cluster Speedometer Software Component-Model-Based development MATLAB&SIMULINK**

- Develop an LCD based TFT Cluster by using the MATLAB & SIMULINK environment modeling is Performed within the MBD guidelines including SLDD creation and linking, Requirement tagging and traceability, design error detection and test generation of model advisor and C-code

**Code for controlling the retraction and extension of Airplane's landing gear STM 32 CUBE IDE |EMBEDDED C**

- Objective is to develop a code simulator of Airplane's landing gear using **Finite state machine (FSM)**.
- In Controlling the direction of valve controls the retraction and extension of airplane's landing gear.
- Assigned each control functions using the "**Enum**" datatypes for the readable access from the user.
- Code construction contains Defined Macros, Enum data types, structure table, user defined header files.
- Program done using the method of modular programming, using the technique of FSM.

**Creation of user defined data type to implement the user interface for working with 'set' EMBEDDED C**

- Created a C program to perform the task of union and intersection using linear linked list.
- Implemented the concept of linked list to assign each node values.
- Simulated the code by assigning formula for union and intersection and developed a user interface to work with "Set theory".

## Certifications

- **Embedded C Essentials (Skill Lync) Completion Certificate UID: lz65godt8cw1q7n0**
- **AVR Bare Metal Programming (Skill Lync) Completion Certificate UID: 9xthv158qb3jps7n**
- **Software V and V and system testing for MBD (skill Lync) Completion Certificate UID: othyef8ugw5m2v7**

## Language Spoken

- English - Limited Working Proficiency
- Telugu - Full Professional Proficiency (Native)
- Hindi - Professional Working Proficiency

**Personal Details**

- **Father's Name** : Mr. Shankara Reddy
- **Mother's Name** : Mrs. Guramma
- **Date of Birth** : 04/06/1998
- **Marital Status** : Unmarried.