Task Name: CAN open-Based Application for Defence System Sensor Operations

Brief: This application is designed to facilitate CAN open-based communication for defence system operations using a Raspberry Pi platform. It provides a user-friendly UI for configuring CAN open parameters, reading sensor data, handling Electronic Data Sheet (EDS) files, and writing configurations. The system will enable seamless integration with CAN open devices, ensuring efficient communication and configuration management.

Revision History

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| --- | --- | --- | --- |
|  | Description | By whom | Release |
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Infrastructure Requirements:

1. PCAN Basic API Installation on Raspberry Pi

* Install and configure the PCAN Basic API for seamless CAN open communication.
* Ensure compatibility with Raspberry Pi OS and necessary drivers.

2. Python Installation on Raspberry Pi

* Install Python along with required libraries for handling CAN communication.

Configuration and Housekeeping Requirements:

1. CAN open UI Development

* Design and implement UI for configuring CAN open parameters.
* Allow users to modify and update configurations in real time.

2. EDS File Management

* Enable loading, parsing, and validation of Electronic Data Sheet (EDS) files.

3. Sensor Data Acquisition

* Implement real-time reading of sensor data.
* Ensure accurate data mapping based on CAN open messages.

Functional Use Case Requirements:

1. System Initialization

* Manual Action Required: User initializes the CAN communication.
* System Response: Displays system status and available CAN open nodes.

### **2. Sensor Data Monitoring**

* **Recognized User Actions:**
  + "Start Monitoring" → Begins real-time sensor data acquisition.
  + "Stop Monitoring" → Stops data acquisition.
* **System Response:**
  + Displays live sensor values from connected CAN open nodes.
  + Alerts the user if communication errors occur.

### 3. **CAN open Configuration UI**

* **Recognized User Actions:**
  + "Load Configuration" → Load existing CAN open configuration.
  + "Modify Configuration" → Edit configuration parameters.
  + "Save Configuration" → Save updated parameters.
  + "Apply Configuration" → Write settings to the CAN open device.
* **System Response:**
  + Confirms successful loading, saving, and application of settings.

### **4. EDS File Handling**

* **Recognized User Actions:**
  + "Load EDS File" → Opens an Electronic Data Sheet file.
* **System Response:**
  + Provides validation feedback and confirms successful loaded.

### ****5.** Configuration Writing to CAN open Device**

* **Recognized User Actions:**
  + "Write Configuration" → Writes modified parameters to the CAN device.
* **System Response:**
  + Confirms successful data transmission or alerts in case of failure.