



# EV CHARGING PROJECT - MASTER TODO LIST

**Student:** Your Name

**Deadline:** Week of December 16, 2025

**Status:** IN PROGRESS

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## CURRENT BLOCKING BUG (FIX FIRST!)



### BUG-001: CP Persistence Problem

**Status:** NOT FIXED

**Priority:** CRITICAL - FIX BEFORE ANYTHING ELSE

**File:** `TODO-BUG-CP-PERSISTENCE.md`

#### Problem:

- CP-001 always exists on startup (hardcoded somewhere)
- When you create CP-002 or CP-003, they work fine
- BUT when you restart the system, they show as "DISCONNECTED"
- They don't reconnect automatically

#### Why this breaks everything:

- Can't test multiple CPs properly
- Can't demonstrate scalability
- Can't show dynamic CP creation/deletion working correctly

**Estimated time:** 2-3 hours

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## CRITICAL TASKS (Required for passing)

### TASK 1: Fix CP Authentication Flow

**Status:** NOT STARTED

**Priority:** CRITICAL

**File:** `TODO-TASK1-AUTHENTICATION.md`

**Estimated time:** 2-3 days

**What's wrong:**

- CPs currently skip Registry and connect directly to Central
- No credential verification happens
- No security at all

**What you need:**

- CP\_Monitor must fetch credentials from Registry first
  - CP\_Monitor authenticates with Central using those credentials
  - Central verifies with Registry before allowing CP to operate
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**TASK 2: Implement Symmetric Encryption**

**Status:** NOT STARTED

**Priority:** CRITICAL

**File:** TODO-TASK2-ENCRYPTION.md

**Estimated time:** 3-4 days

**What's wrong:**

- All messages between CP and Central are plain text
- Anyone can read/modify messages
- Zero security

**What you need:**

- After authentication, Central gives each CP a unique encryption key
  - CP\_Engine encrypts all messages to Central
  - Central decrypts all messages from CPs
  - Each CP has different key
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**TASK 3: Create Proper Audit Log**

**Status:** NOT STARTED

**Priority:** CRITICAL

**File:** `TODO-TASK3-AUDIT-LOG.md`

**Estimated time:** 1 day

**What's wrong:**

- No audit log file exists
- Kafka events exist but teacher can't see them
- No IP address tracking

**What you need:**

- Create `data/audit_log.txt` file
  - Log every important action with: timestamp, IP, who, what, parameters
  - Teacher must be able to open this file and see everything that happened
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## **TASK 4: Add HTTPS to Registry**

**Status:** NOT STARTED

**Priority:** HIGH

**File:** `TODO-TASK4-HTTPS-REGISTRY.md`

**Estimated time:** 1 day

**What's wrong:**

- Registry uses HTTP (insecure)
- Anyone can intercept credentials
- Correction guide requires HTTPS/SSL

**What you need:**

- Generate self-signed SSL certificate
  - Make Registry API run on HTTPS
  - Update CP\_Monitor to connect via HTTPS
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## **TASK 5: Fix Key Revocation Mechanism**

**Status:** PARTIALLY DONE

**Priority:** MEDIUM

**File:** TODO-TASK5-KEY-REVOCATION.md

**Estimated time:** 1 day

**What's wrong:**

- Admin menu has "revoke key" option but doesn't work
- CP doesn't realize its key was revoked
- No re-authentication happens

**What you need:**

- When admin revokes key, CP's messages get rejected
  - CP sees "bad key" error
  - CP must re-authenticate to get new key
  - All without restarting anything
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## RECOMMENDED WORK SCHEDULE

**Week 1 (Now - Dec 16):**

- **Day 1:** Fix CP persistence bug (BUG-001)
- **Day 2-3:** Implement authentication flow (TASK 1)
- **Day 4-6:** Implement encryption (TASK 2)
- **Day 7:** Create audit log (TASK 3)

**Week 2 (Dec 16-23):**

- **Day 1:** Add HTTPS to Registry (TASK 4)
  - **Day 2:** Fix key revocation (TASK 5)
  - **Day 3-4:** Test everything together
  - **Day 5-6:** Deploy on 3 computers and practice demonstration
  - **Day 7:** Final testing and prepare for correction
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## PROGRESS TRACKER

Task	Status	Time Spent	Notes
BUG-001	<input type="radio"/> Not Started	0h	MUST DO FIRST
TASK 1	<input type="radio"/> Not Started	0h	
TASK 2	<input type="radio"/> Not Started	0h	
TASK 3	<input type="radio"/> Not Started	0h	
TASK 4	<input type="radio"/> Not Started	0h	
TASK 5	<input type="radio"/> Not Started	0h	

### Legend:

- ☐ Not Started
- ☒ In Progress
- ☒ Completed
- ☒ Blocked/Issues

## WHAT TEACHER WILL CHECK

During correction, the teacher will:

1. ☒ Ask you to deploy on 3 different computers
2. ☒ Ask you to explain authentication flow (CAN'T - not implemented)
3. ☒ Ask to see encrypted messages (CAN'T - not implemented)
4. ☒ Ask to see audit log file (CAN'T - doesn't exist)
5. ☒ Ask to create/delete CPs dynamically (works if bug fixed)
6. ☒ Ask about key revocation (doesn't work properly)
7. ☒ Test resilience by killing processes randomly (mostly works)
8. ☒ Check HTTPS on Registry (not implemented)

## **NOTES TO REMEMBER**

- Don't panic - you have good foundation, just missing security
  - Fix the CP bug FIRST before doing anything else
  - Authentication must come before encryption (can't encrypt without keys)
  - Test each task thoroughly before moving to next one
  - Keep this file updated with your progress
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## **IF YOU GET STUCK**

1. Re-read the task file for that specific task
  2. Check the correction guide requirements
  3. Test in small steps (don't try to do everything at once)
  4. If a task blocks you for more than 4 hours, move to next one and come back later
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**Last Updated:** December 16, 2025

**Next Review:** After fixing BUG-001