

Door Locker Security System

Final Submission Instructions

1. Required LMS Submissions

Each team must submit **one final report (PDF)** through the LMS, **only 1 team member** needs to submit. The report must include two working links:

- Google Drive Video Demonstration Link
- Source Code Link (Google Drive / GitHub)

Both links must be accessible **without permission requests**.

2. Video Demonstration Requirements

The video must clearly demonstrate all functional requirements listed in the grading rubric.

Video Guidelines:

- Follow the rubric checklist exactly
- Keep the video short, focused, and technical. **Max 10 minutes** video.
- Avoid long speeches or explanations
- Upload on Drive as video and **not compressed file**.

Mandatory Video Structure:

- Use **clear visual separators** (e.g., white screen or title slide) between sections
- Each separator **must indicate** the feature being tested next, such as:
 - Password Setup & EEPROM Storage
 - Wrong Password Handling & Lockout
 - UART Communication Test
- Demonstrate actual system behavior (LCD, motor, buzzer, LEDs)

Unclear videos, missing features, or poor structure will be graded as **feature not demonstrated. It is your responsibility to showcase all features.**

3. Final Report Requirements

The report must be technical, structured, and professional, and must clearly document the following:

A. System Documentation

- Overall system description and architecture
- Clear proof of layered architecture (MCAL, HAL, Application)
- Explanation of inter-ECU UART communication design

B. Functional Implementation

- Description of implemented features
- Challenges faced during development
- Technical problems encountered and how they were solved

C. Non-Functional Requirements (**Mandatory**)

- Memory usage analysis (Flash, RAM, Stack), including tools and methodology
- Software testing, either manual or automated; with screenshots of pass/fail logging results, or manual debugging and testing of individual software pieces.
- Coding standards compliance:
 - Selected coding standard
 - At least five documented violations with before/after fixes

D. Team Contribution

- Contribution table showing each member's responsibilities
- Completed self-grading matrix based on the grading rubric

Reports lacking technical depth, missing sections, or proper evidence will lose marks.

4. Grading Policy

- Grading follows the below rubric strictly
- Marks are awarded only for clearly demonstrated and documented work
- Any feature not shown in the video or supported in the report will not be counted

Grading Rubric (25 Marks)

Criteria	Marks	Details	✓	✗
1) Functional Requirements	16			
- Password Setup & Storage	3	Initial setup, confirmation, and EEPROM persistence		
- Open Door Functionality	3	Motor control, timeout handling, and user feedback via LCD		
- Wrong Password Handling	3	Up to 3 attempts, buzzer activation, and lockout mode & recovery		
- Change Password	2	Old password required, new password confirmation and storage		
- Auto-Lock Timeout Setting	2	Timeout via potentiometer, password to save & EEPROM storage		
- LED Feedback	1	LED indicates system state		
- UART Communication	2	Reliable communication between boards		
2) Non-Functional Requirements	6			
- Code Quality & Standards	2	Coding standard followed, 5 violations documented and resolved		
- Resource Analysis	2	Flash, RAM, and stack usage measured and methodology explained		
- Testing Implementation	2	Unit, integration, and functional testing with result logging		
3) Software Design & Report	3			
- Layered Architecture	1	Clear separation into MCAL, HAL, and Application layers		
- Final Report	2	Well-structured and complete with required sections		