DESN2000 (Computer Engineering) 2026 T2
Assessment Guide for Project Implementation (30% of the total grade)

Last edited: 21/07/2026

Now is the time to begin implementing your project, if you haven't already started. During the implementation phase, you may realise that some aspects of your original design (as documented in your design journal) need to be revised. This is completely acceptable. However, if the changes are substantial, it may indicate that the initial design process lacked sufficient depth or consideration. As mentioned in the project brief, you will use the CoaST development Board (STM32 ARM). The door firmware is to be written in C (you can use HAL) and/or assembly language.

During development, you are expected to use a GitHub/GitLab repository, which allows version control and collaboration. You should follow standard Git practices like descriptive and meaningful commit messages, branching to isolate changes, etc. If you need help setting up your own GitHub/GitLab repository, refer to the guide provided in webCMS. Also, feel free to ask a tutor either in person or on the forum. To ensure that your program is easily maintainable and extendable, it's crucial to structure it well and provide adequate comments.

Submission

There will be one submission for this component and only one member of the group should do the submission, this submission will be in the form of sharing your repository link (pasting it in a pdf file is sufficient). You should ensure that either the repository is public, or you have added z5481729 (if using GitLab) or Saitama909 (if using GitHub) to the repository. There will also be a form that every one of you must fill out indicating each member's **contribution to the implementation**. The submitted source code will be checked for plagiarism and will receive a mark of 0 if plagiarism is detected.

Deadline for the submissions and completing the contribution form: 11:59 PM, Friday (Week 10).

Viva

The implementation will be marked in a viva where each group will demonstrate their work to a tutor. You will answer questions asked by the tutor to demonstrate your understanding. Note that if you fail to answer a question, you will not receive full marks, even if that component works. If tutors determine that the work is not done by you (lack of understanding), you may even get a 0.

Viva: 20-30 minutes per group, which will be in week 11 or week 12 (to be decided). We will release a booking form later, and the booking times will be first come first served basis.

Mark Distribution for the Group

Item	Marks
NFC/RFID Access Control	
Authorised NFC card grants entry	**3**
Unauthorised NFC card is rejected	**3**
Administrative RFID key grants override/emergency access	**3**
Exit does not require authorisation	**2**
Door Mechanism	
Motor moves in different directions for entry vs exit	**4**
Motor/flap correctly represents open and closed state	**4**
Door closes (returns to closed state) after entry completes	**2**
Door closes (returns to closed state) after exit completes	**2**
System uses the two LDRs to detect whether someone is entering or exiting reliably and consistently	**6**
Door does not close on a person already in transit (safety rule: alert only if someone sneaks in)	**4**
Alert only triggers if someone sneaks in (or during other security risks)	**3**
Design handles simultaneous exiting and entering (i.e. someone tries to enter and someone tries to exit at the same time, you can also assume that the door is one person wide)	**5**
Design handles common edge cases and general operation	**4**
Visual & Audio Signalling	
Lights signal authorised entry	**2**
Prominent visual alert (lights) on unauthorised access attempt	**3**
Audible alert (buzzer) on unauthorised access attempt	**2**
Management Configuration	
Configuration accessible only after administrative authorisation	**2**
Keypad interface allows management to configure unlock time	**2**
Keypad interface allows management to configure unlock duration	**2**
Display shows current configuration	**2**
Scheduled unlock activates correctly at the configured time	**2**
Scheduled unlock deactivates correctly after duration	**2**
System Responsiveness	
Sensor inputs are read without noticeable lag	**3**
Door/motor responds promptly to triggers	**3**
System behaves reliably over repeated use	**3**
UI Design	
Keypad/display layout is clear and intuitive	**3**
Feedback to user is easy to understand (icons/text/lights)	**3**
Overall interface feels simple and easy to use	**4**

Code Quality	
Code is split into clear, reusable functions and modules	**4**
Sufficient and meaningful use of comments	**4**
Variable/function names are clear and self-explanatory	**2**
Version control is used with meaningful, incremental commits	**5**
Code is consistently formatted and easy to read	**2**

Individual contribution

The sum of the above marks will then be scaled based on the contribution to calculate the individual mark as follows.

*Individual mark = contrib_x * contrib_y * (sum of the marks above) * 30/ 100*

contrib_x:

Each individual must bring their own board and laptop with the cubeIDE project available. You should demonstrate to the tutor how you would flash the board in a maximum of 5 minutes. The tutor will assess your familiarity based on how you perform this and will assign a value between 0.8 to 1.0. Don't worry, technical issues beyond your control will not be penalised.

contrib_y:

This is based on the individual contribution form and will be capped at 1.05.

*contrib_y = (average percentage assigned to the individual) * (no. of group members in the group)/ 100*