DESN2000 (Computer Engineering) 2025 T2
Assessment Guide for Project Implementation (30% of the total grade)

Last edited: 26/06/2025

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 smartwatch 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 Ed 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. 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

The marks for the group will be assigned as follows:

Standard Features (~70%)

Item		**Marks**
Home screen shows time, day and other information of your choice (e.g., simulated step count, heart rate)		5
Using buttons, it is possible to scroll through different activity tracking screens, such as the step count, heart rate, and floors climbed.		5
Button presses	Indicated by sounds	2
	Indicated by haptics (vibrational feedback), implemented by rotating the stepper motor	2
	Button sounds can be disabled using a setting	2
	Button haptics can be disabled using a setting	2
Fake solar charging screen - indicated by the two light-dependent resistor readings, and shows the light intensity values over the last few minutes		5
The flashlight feature, which lights up all the LEDs (D1-20 and LD2) on the development board		5
Time of the day	Works reasonably accurately	4
	Can be set by the user	4
Alarm	Works reasonably accurately	2
	Can be set by the user	2
	Gives a sound	2
	Indicates vibration (stepper motor rotates)	2
Stopwatch	Works reasonably accurately	2
	Can be started and reset	2
	Can be paused and resumed	2
Countdown timer	Works reasonably accurately	2
	Can be set by the user	2
	Indicates when the countdown finishes through a sound and vibration	2
Smartwatch is reasonably responsive		5
Source quality	Modularity (separation into files/functions)	3
	Adequate comments	3
	Formatting (consistent indentation and spacing)	3
Advanced features that make your work outstanding. It can be 1 very challenging yet very impressive feature, or 2 moderately difficult yet interesting features, or 4 relatively easy yet sufficiently advanced features.		30

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.

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