**Peer Review Form and Instructions**

During the peer review process, you are responsible for downloading, installing, and running the source code and the Simulink models of the projects of the two groups you have to review. Then, you must assess the following scenarios and complete the Evaluation Table reported on the next page (complete the parts marked with red color). All the following parts (1 to 24) should be completed

Record the test

**Simulink models**

For the following experiments, consider these configuration parameters

1. Move the pacemaker into VOO mode (LRL = 120 bpm, VPW = 1ms, VA = 5V). Open heart view. **Check** that the heart is pacing at 120 bpm, the pulse width is 1ms, and the amplitude is 5V.
2. Change the mode from VOO to AOO and use the following configuration parameters for AOO (LRL = 60 bpm, APW = 5ms, AA = 1V). Open heart view. **Check** if the mode is dynamically changing and if the heart is pacing at 60 bpm, the pulse width is 5ms, and the amplitude is 1V.

For items 3 to 6, use heart rate (A and V) = 62, PW 1ms and contact the other group for their optimal sensitivities.

1. Change the mode from AOO to VVI and use the following configuration parameters for VVI (LRL = 120 bpm, VPW = 1ms, VA = 5V, VRP = 200 ms). **Check** the pacemaker should be pacing in the middle of the natural heart pulse.
2. Change the configuration parameters of the VVI mode to LRL = 30 bpm, VPW = 1ms, VA = 3V, VRP = 200 ms. **Predict** the expected output and **check** in heartview that the pacemaker is pacing correctly.
3. Change the mode from VVI to AAI and use the following configuration parameters for AAI (LRL = 120 bpm, APW = 1ms, AA = 5V, ARP = 200 ms). **Predict** the expected output and **check** in heart view that the pacemaker is pacing correctly.
4. Change the configuration parameters of the AAI mode to LRL = 30 bpm, APW = 1ms, AA = 3V, ARP = 250 ms. **Predict** the expected output and **check** in heartview that the pacemaker is pacing correctly.
5. Open the Simulink model. **Check** if you find any error in the Stateflow design.
6. Open the Simulink model. **Check** if the logic and the hardware management are handled in different Simulink Subsystems.
7. Each mode has some parameters that are needed. **Check** that all the variables required by each mode are configurable.
8. The model should be properly commented. **Check** that the authors add comments to their design.

**DCM**

1. **Check** if you can login and register (10 user max).
2. **Check** if the parameters are saved and able to display the previous parameters’ values.
3. Try to set values for the parameters that are outside their threshold limits or that violate cross-variable limits as well as their increments. **Check** that the system warns the users in these cases.
4. **Check** if you can echo back the data sent to the pacemaker.
5. **Check** if you can display egram.
6. **Check** if the DCM produced errors or crashes during all the previous steps.
7. **Check** if the code is commented.

**Optional + Bonus**

1. If rate adaptive is implemented, **check** if the logic is correct and all R mode is present. *[Optional 1 - Rate Adaptive modes]*
2. Set the mode to AOOR with a reaction time of 10s and all others as nominal values. **Check** for the correct output without shaking *[Optional 2.1 - Rate Adaptive]*
3. Now, shake the board. **Check** if the rate is getting faster and does not exceed MSR. *[Optional 2.2 - Rate Adaptive]*
4. Check if the requirement tables are present. **Check** if they are complete and consistent. *[Optional 3.1 - Testing]*
5. Check if Simulink test cases are present. **Check** if the test cases are reasonable. *[Optional 3.2 - Testing]*
6. Set the mode to DDD with all nominal values, **Check** if the logic and the output is correct, especially note that there should be a AV delay present *[Bonus 4.1]*
7. Set the mode to DDDR with all nominal values, **Check** if the logic and the output is correct, especially note that there should be a AV delay present *[Bonus 4.2]*

Note: The two groups will check all (optional if completed), in the demo we will ask you to demo 1 or 2 depending on the time left.

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - the test does not pass - a failure is present - to 1 the test passes - no failure detected)  1 |
| 1 | Expected Result (Textual Description):  Pulses at 120 bpm with 1ms pulse width with 5V amplitude |
| Actual Result (Textual Description):  It Works |
| Problem Description (Textual Description): |
| Heart view Screenshot: |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - the test does not pass - a failure is present - to 1 the test passes - no failure detected)  1 |
| 2 | Expected Result (Textual Description): Pulses at 60 Bpm and 1V amplitude |
| Actual Result (Textual Description):  It works |
| Problem Description (Textual Description): |
| Heart view Screenshot: |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - the test does not pass - a failure is present - to 1 the test passes - no failure detected)  1 |
| 3 | Expected Result (Textual Description): should pace between ventricle signals |
| Actual Result (Textual Description): it works |
| Problem Description (Textual Description): |
| Heart view Screenshot: |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - the test does not pass - a failure is present - to 1 the test passes - no failure detected)  1 |
| 4 | Expected Result (Textual Description): should not pace |
| Actual Result (Textual Description): it works |
| Problem Description (Textual Description): |
| Heart view Screenshot: |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected)  1 |
| 5 | Expected Result (Textual Description): should pace between atrium signals |
| Actual Result (Textual Description): it works |
| Problem Description (Textual Description): |
| Heart view Screenshot: |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected)  1 |
| 6 | Expected Result (Textual Description): should not pace |
| Actual Result (Textual Description): it works |
| Problem Description (Textual Description): |
| Heart view Screenshot: |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected) 1 |
| 7 | Errors: |
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| Stateflow Screenshot: |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected) 1 |
| 8 | The logic and the hardware management are handled in different Simulink Subsystems? Comments |
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| Screenshot of the model containing the subsystems |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected) 1 |
| 9 | Errors (e.g., parameters that were not considered). |
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| Screenshot of an example of parameters that were considered or are not supported: |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected) 1 |
| 10 | Comments: |
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| Screenshot of comments within the model: |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected)  1 |
| 11 | Assessment  Can log in and there is a max of 10 users |
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| Screenshot of login/registration: |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected) 1 |
| 12 | Assessment  DCM save button works as intended |
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| Screenshot of login/registration:        Same parameters saved when relogging in |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected)  1 |
| 13 | Assessment (description of the test - and assessment):  System prevents users from setting LRL higher than URL and URL lower than LRL  Maximum and minimum LRL value is included in slider, no threshold values can be broken  Values can only be changed with sliders |
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| Screenshot of the loading of previous parameters |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected)  1 |
| 14 | Assessment (description of the test - and assessment):  Set the dcm to a random mode, different than the current running one, pressed pacemaker read and the dcm mode and values updated in real time to the current mode and parameters running. |
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| Screenshot of the echo back |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected)  1 |
| 15 | Assessment (description of the test - and assessment):  Egram reads heart paces on heart view correctly and displays it on a graph. |
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| Screenshot of the egram |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected)  0.9 |
| 16 | Assessment (description of the test - and assessment):  No crashes or malfunctions of dcm |
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| Screenshot of the crash |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected)  0.9 |
| 17 | Assessment (description of the test - and assessment):  Comments added but could have more |
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| Screenshot |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected) 0 |
| 18 | Assessment (description of the test - and assessment):  Does not exist |
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| Screenshot |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected) 0 |
| 19 | Assessment (description of the test - and assessment):  Does not exist |
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| Screenshot |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected) 0 |
| 20 | Assessment (description of the test - and assessment): |
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| Screenshot of the comments |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected) 0 |
| 21 | Assessment (description of the test - and assessment): |
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| Screenshot |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected) 0 |
| 22 | Assessment (description of the test - and assessment): |
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| Screenshot of the comments |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected) 0 |
| 23 | Assessment (description of the test - and assessment): |
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| Screenshot |

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| **Task** | Result (Pass/Fail) or Degree of success (from 0 - problems are detected - to 1 - no problems detected) 0 |
| 24 | Assessment (description of the test - and assessment): |
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| Screenshot of the comments |