Software Development - 3K04

Assignment 3 - Overview

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Group 7 - "Group 4"

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1   Introduction

Our group was able to implement all of the design requirements for the Pacemaker Project including the bonus with the exception of atrium functionality due to a fault in the pacemaker shield. Extensive simulation testing proved that the atrium would pace if the shield were in full working order. This means our pacemaker was able to react accordingly to different paces and adapt to the modes specified in the requirements.

The function of the pacemaker was dictated through the DCM, which was able to successfully interact with the Pacemaker by reading and writing serial data. In addition, the electrogram portion of the DCM was capable of displaying chamber voltage activity in real time. The pacemaker and all aspects of the DCM were able to function together and produced expected outputs for all conditions. The deliverables include the MATLAB files for the DCM and Simulink, several test cases for both the DCM and the functional pacemaker. All work was conducted on MATLAB 2017b.

2   Bonus

The implementation and documentation for DDD and DDDR mode is documented in the pacemaker design file. Electrogram markers were implemented into the DCM and the design work can be viewed in the DCM design document and the DCM code file. Our definition of markers includes a colour coded legend that indicates which graphed line on the electrogram represents each chamber.

3   Files

The following files are included in the submission.

- Folder: PacemakerProject_group7.zip

    - PacemakerProject_group7.pdf
    - Folder: DESIGN_group7
        * DCMdesign_group7.pdf
        * pacemakerDesign_group7.pdf
    - TESTING_group7
        * DCMtests_group7.pdf
        * pacemakerTests_group7.pdf
    - CODE_group7
        * Assingment3_3K04_DCM_Group_7.mlapp   **DCM File**
        * Assingment3_3K04_Part1.slx   **Pacemaker File**
        * test_file.txt   **myRIO Test File**