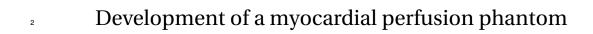


Development of a myocardial perfusion phantom

Gijs de Vries, s1854526

Revision 0.1

ii	Development of a myocardial perfusion phantom (Draft)



G.J. de Vries, s1854526

Tuesday 8th January, 2019

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5 Preface

- 6 The system requirements specify all the requirements for the myocardial perfusion phantom.
- These requirements are based on research and interviews with stakeholders.
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- 9 Enschede, 7th of January 2019

iv	Development of a myocardial perfusion phantom (Draft)

10 Contents

11	1	Introduction		1	
12	2	2 Functional			
13		2.1	Drivers	2	
14		2.2	Business model	2	
15		2.3	Functional and system requirements	2	
16		2.4	Business and system use cases	2	
17	3	Technical		3	
18			Requirements		
19		3.2	System qualities	3	
20		3.3	Constraints and Assumptions	3	
21	A	App	endix: Work weeks	4	

vi	Development of a myocardial perfusion phantom (Di	raft)

2 1 Introduction

- 23 Myocardial Perfusion Imaging (MPI), or, simply put, the imaging of the blood flow in the heart
- 24 muscle, plays an important role in diagnosing heart failure or detecting Coronary Artery Dis-
- ease (CAD). Imaging systems like Computed Tomography (CT), Magnetic Resonance Imaging
- 26 (MRI), Single-Photon Emission Computed Tomography (SPECT), or Positron Emission Tomo-
- 27 graphy (PET) can visualise a (radioactive) contrast bolus in the supplying arteries and in un-
- derlying myocardial tissue, whose flow can give an indication of narrowed or blocked blood
- 29 vessels.
- 30 Many variations in the visualisation process of myocardial perfusion, including variations in
- hard- and software, can (significantly) influence the outcome and in turn have consequences
- for patient treatment. These variations need to be validated against a well-known baseline.

33 Document overview

- ³⁴ [todo] This section
- 35 Abbreviations
- 36 **CAD** Coronary Artery Disease
- CT Computed Tomography
- 38 MPI Myocardial Perfusion Imaging
- 39 MRI Magnetic Resonance Imaging
- 40 **PET** Positron Emission Tomography
- 41 SPECT Single-Photon Emission Computed
- 42 Tomography

2 Functional

based on https://www.inflectra.com/ideas/topic/requirements-definition.aspx

45 **2.1 Drivers**

This section describes the reasons why the customer is looking to buld the system.

47 2.2 Business model

This section describes the underlying business model of the customer.

49 2.3 Functional and system requirements

- 50 This section conists of a hierarchical organizations of requierments witht he business/func-
- tional requirements at the highest level and the detailed system requirements as their child
- $_{52}$ items. Generally as "system needs the ability to do x".

53 **2.4** Business and system use cases

Use case diagram.

55 3 Technical

56 3.1 Requirements

techincal details, operating environments, constraints et cetera.

58 3.2 System qualities

- Define the quality of the system: such as reliability, availability, serviceability, security, scalab-
- 60 ility, maintainability.

61 3.3 Constraints and Assumptions

- Design constraints that have been imposed and assumptions that have been made by the re-
- quirements engineering team when gathering and analyzijng the requirements.

A Appendix: Work weeks