

Radio Telescope: System Design Document

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1 Introduction

1.1 Purpose and Scope

1.2 Project Executive Summary

1.2.1 System Overview

1.2.2 Design Constraints

1.2.3 Future Contingencies

1.3 Points of Contact

1.4 Project References

1.5 Glossary

1.5.1 System Specific Definitions

System Specific Definitions	

1.5.2 Technical Definitions

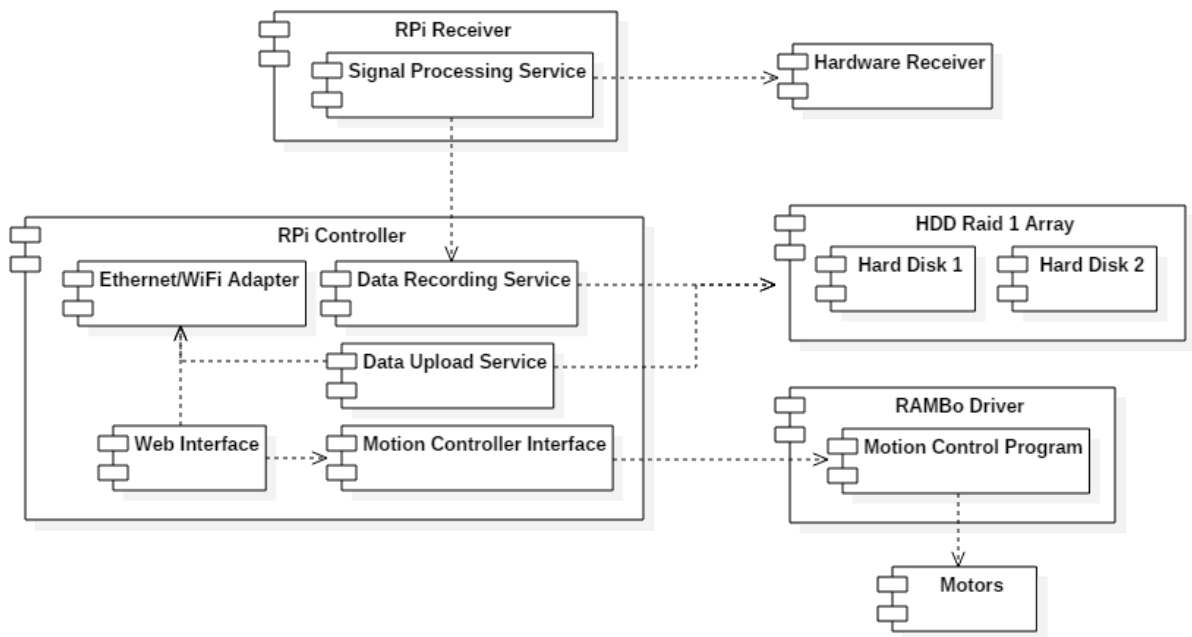
Technical Definitions	

1.5.3 Industry Definitions

Industry Definitions	

1.6 Document Organization

2 System Architecture



2.1 System Hardware Architecture

2.2 System Software Architecture

2.3 Internal Communications Architecture

3 Human-Machine Interface

3.1 Inputs

3.2 Outputs

4 Detailed Design

4.1 Hardware Detailed Design

4.1.1 Raspberry Pi 2

Raspberry Pi 2 Specifications	
Cost:	\$35 USD
SoC:	Broadcom BCM2836
CPU:	900MHz quad-core ARM Cortex-A7
GPU:	Broadcom VideoCore IV, OpenGL ES 2.0, OpenVG 1080p30 H.264 high-profile encode/decode
Memory (SDRAM)iB:	1024 MiB
USB 2.0 Ports:	4 (via intergrated USB hub and LAN9512)
Onboard Storage:	Micro Secure Digital / MicroSD slot
Onboard Network:	10/100 wired Ethernet RJ45
Real-time Clock:	None
Power Ratings:	650 mA, (3.0 W)
Power Source:	5 V (DC) via Micro USB type B or GPIO header
Size:	85.0mm x 56.0 mm x 17mm
Weight:	40g

4.2 Software Detailed Design

A Appendix