Mithril - FMCW Radar

by

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Chapter 1

Introduction

The following includes small biographies on all the authors as well as their research interests and projects.

Authors' Biographies

Ajay Thakkar

Ajay Thakkar Ajay Thakkar is a junior majoring in Computer Engineering. He is interested in signal processing and lower level coding. Below you can find his GitHub: https://github.com/athakkar2.

Tomas Esson

Tomas Esson is an aspiring Computer Engineering at Stevens Institute of technology. He is an avid surfer and enjoys elegant math proofs. Currently pursuing interests in computer chip design, digital systems implementation, mathematical optimization of computer chips, and electrical engineering.

Juan Jimenez

Juan Jimenez is a Junior Computer Engineering student at the Stevens Institute of technology. Interested in the intersection between Artificial Intelligence, embedded electronics, and software engineering. To see more projects visit the following GitHub link: https://github.com/jjimene1

Chapter 2

Project Description

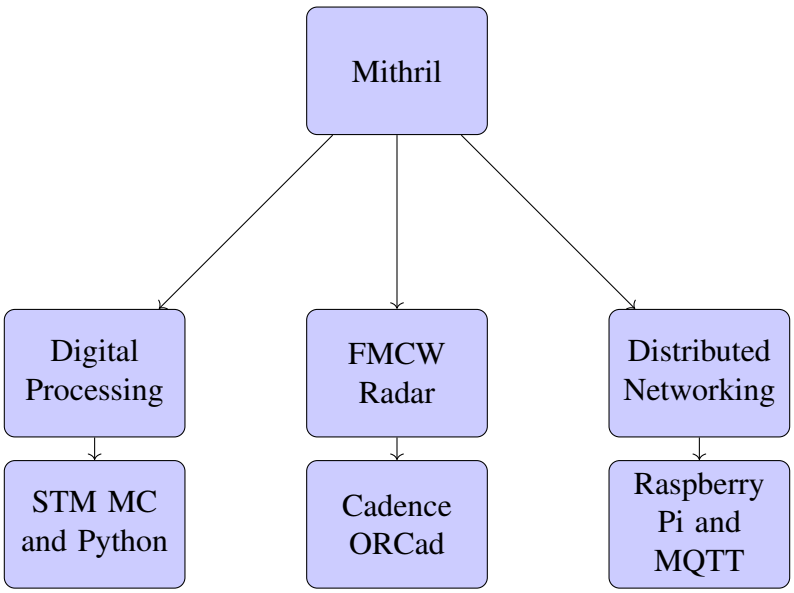

Figure 2.1: Flowchart of the Mithril system

Mithril is a nodal FMCW radar system that incorporates traditional FMCW radar, digital processing, edge computing, and distributed networking. The initial idea of this

As can be seen in Figure 2.1, the radar was designed as a standalone PCB in ORCad, digital processing was handled by STM microcontrollers, and distributed networking is done via Raspberry Pi's and the MQTT protocol. All of these components were designed, engineered, and interfaced from scratch with a limited budget of 2000 dollars.

2.1

The heart of the project is a standalone PCB capable of FMCW radar.

Chapter 3

Resources

Chapter 4

Radar Theory

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Part Selection

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