

UC Irvine

SSOE Research Symposium Dean's Awards

Title

Survivor Detection Location Unmanned Aerial Vehicle

Permalink

<https://escholarship.org/uc/item/8fs6p8x7>

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Publication Date

2018-03-15

Peer reviewed

SURVIVOR DETECTION LOCATION UNMANNED AERIAL VEHICLE

GOALS

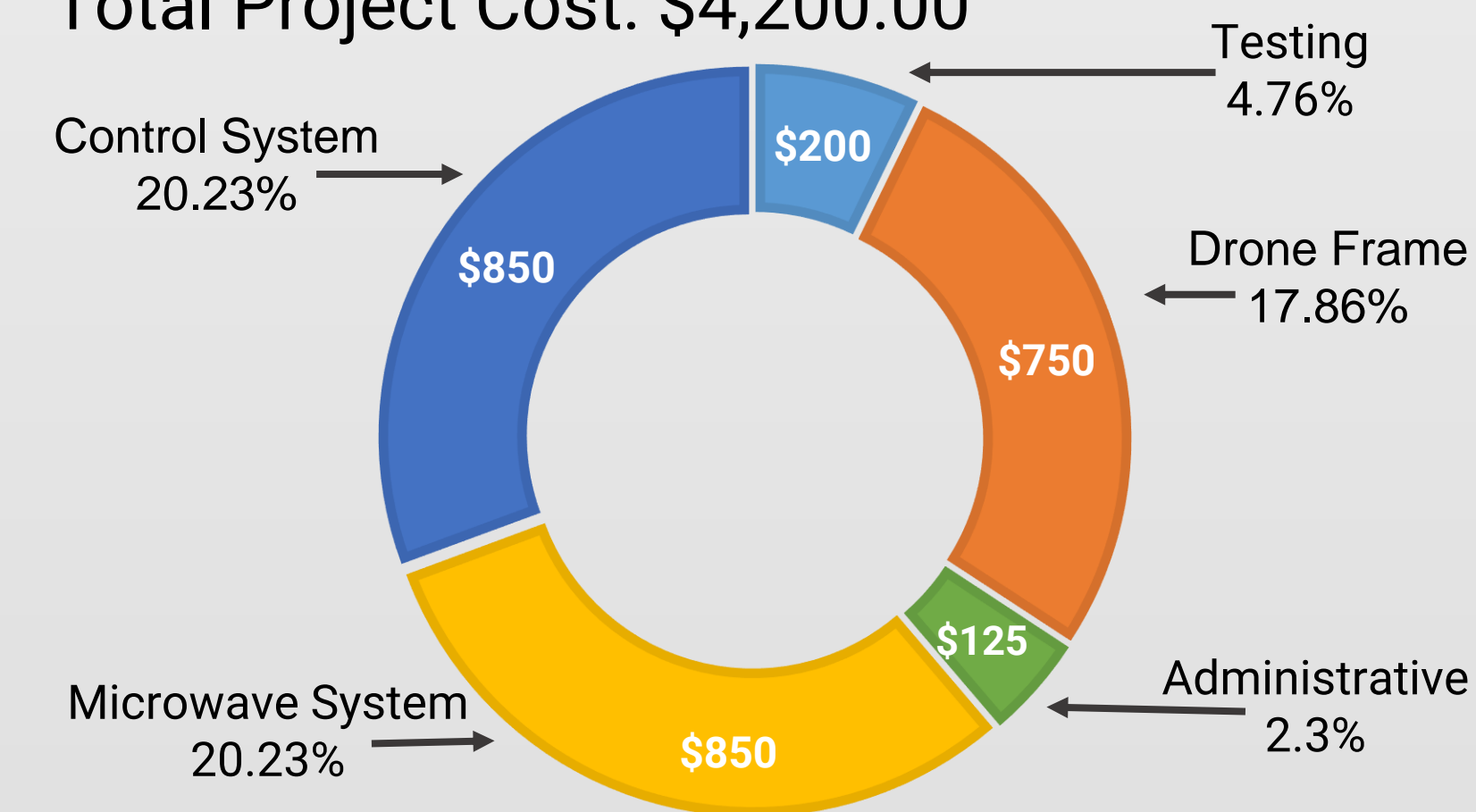
Engineer an autonomous drone outfitted with a microwave system capable of heartbeat detection through various mediums in disaster situations.

OBJECTIVES

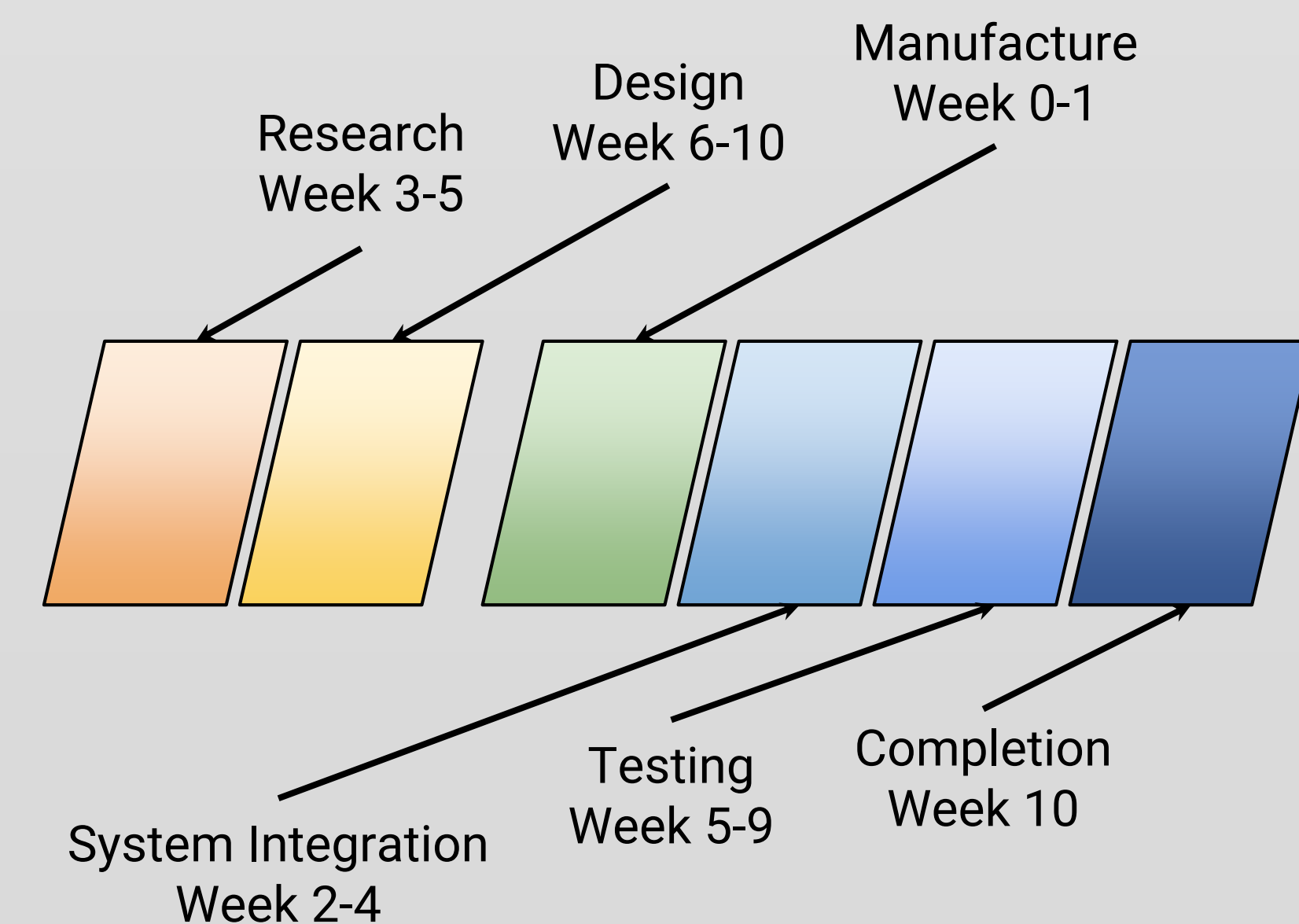
- \$1,200 Product Cost
- 15 Minute Assembly
- 30 Minute Flight Time
- 15 Feet Material Penetration
- Autonomous Flight Control

BUDGET

Total Project Cost: \$4,200.00

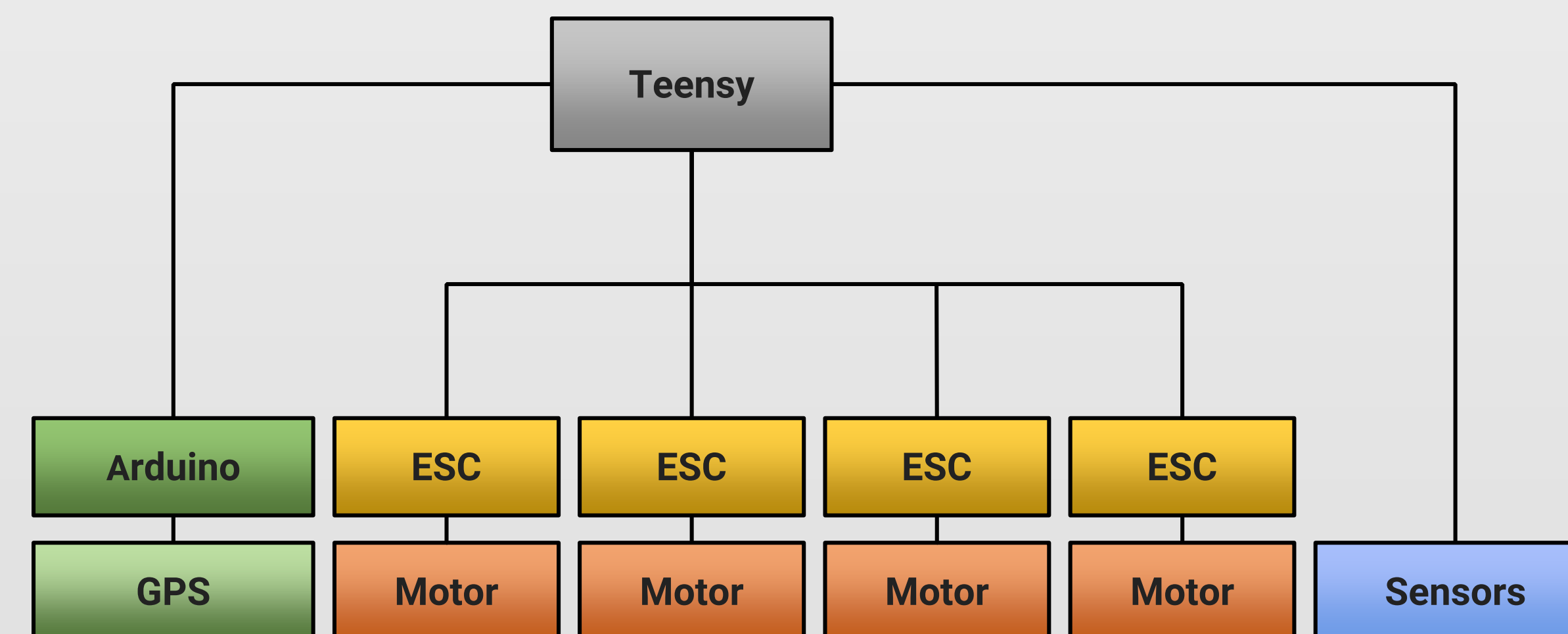


TIMELINE

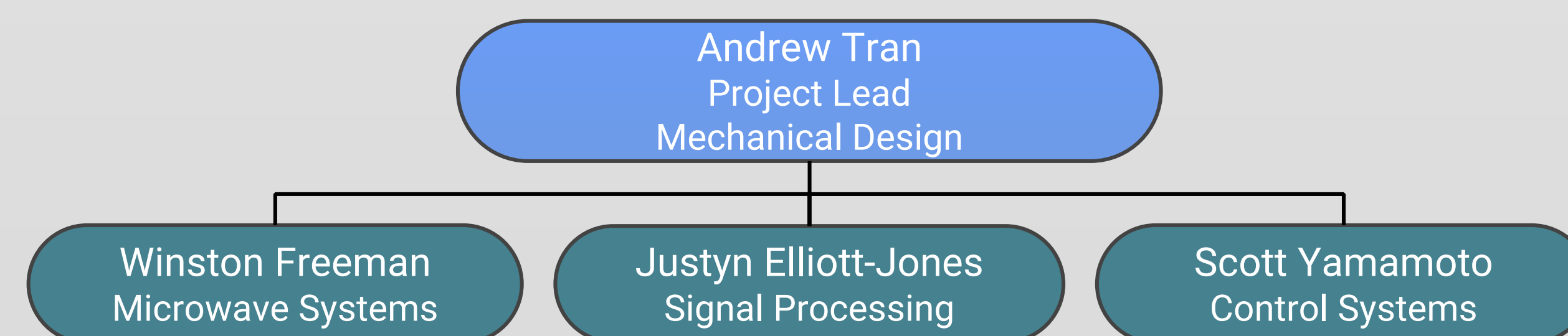


FLIGHT CONTROLS

Teensy 3.5 Controller - GPS for Navigation - MultiWii Firmware



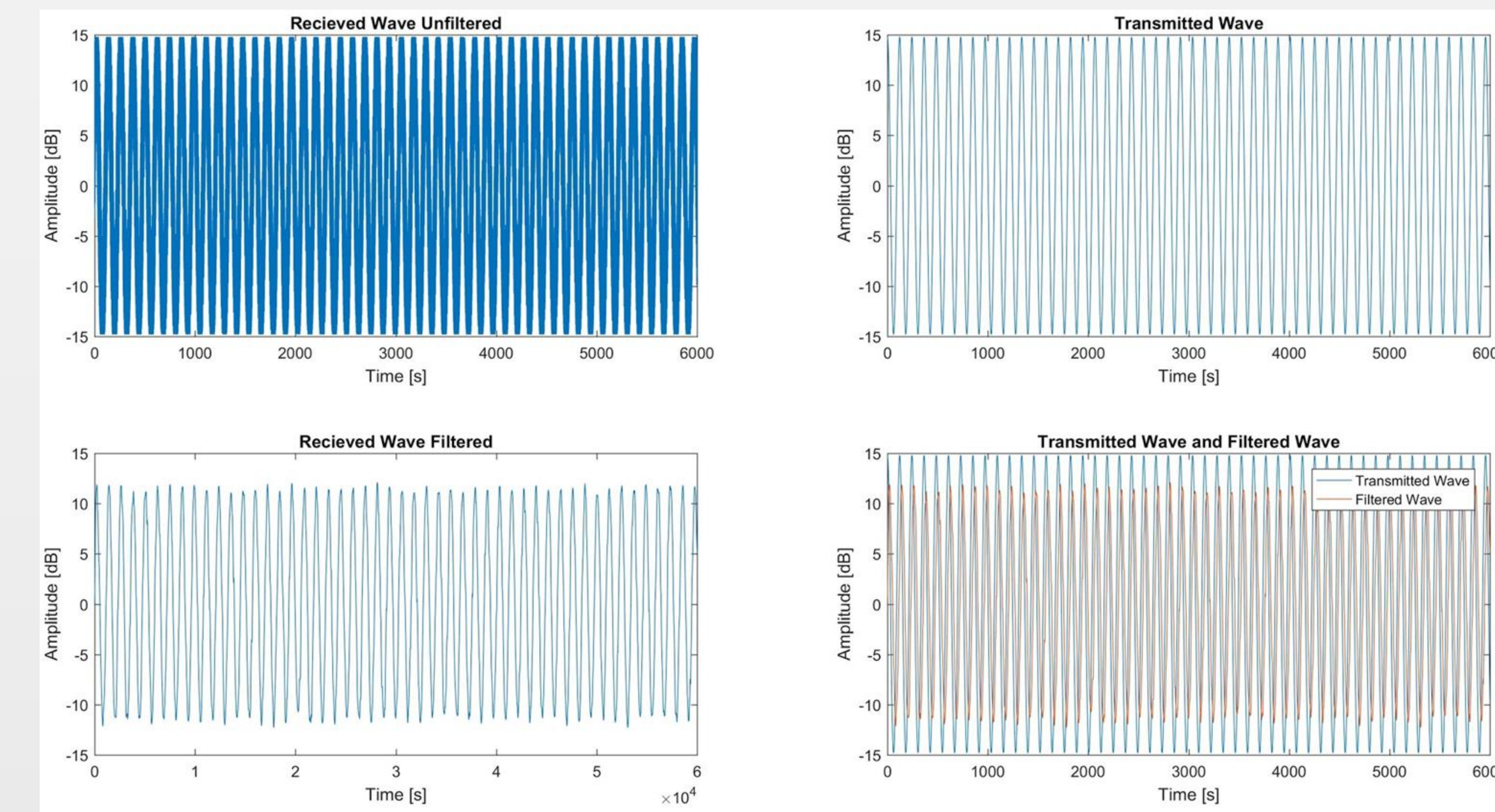
TEAM ORGANIZATION



REFERENCES

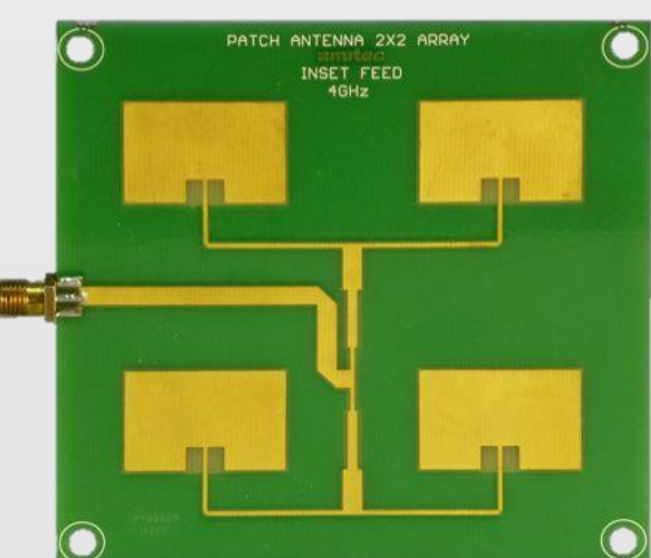
1. Analysis And Design of Rectangular Microstrip Patch Antenna On Different Resonant Frequencies For Pervasive Wireless Communication: International Journal of Scientific & Technology Research
2. An Analysis of 5.8 GHz Microwave Doppler radar for Heartbeat Detection: Universiti Teknikal Malaysia Melaka
3. Signal Processing Methods for Doppler Radar Heart Rate Monitoring: Kai Sensors, Inc., HI, USA1 University of Hawaii at Manoa, HI, USA2 and Broadcom, Inc., USA3

SIGNAL PROCESSING

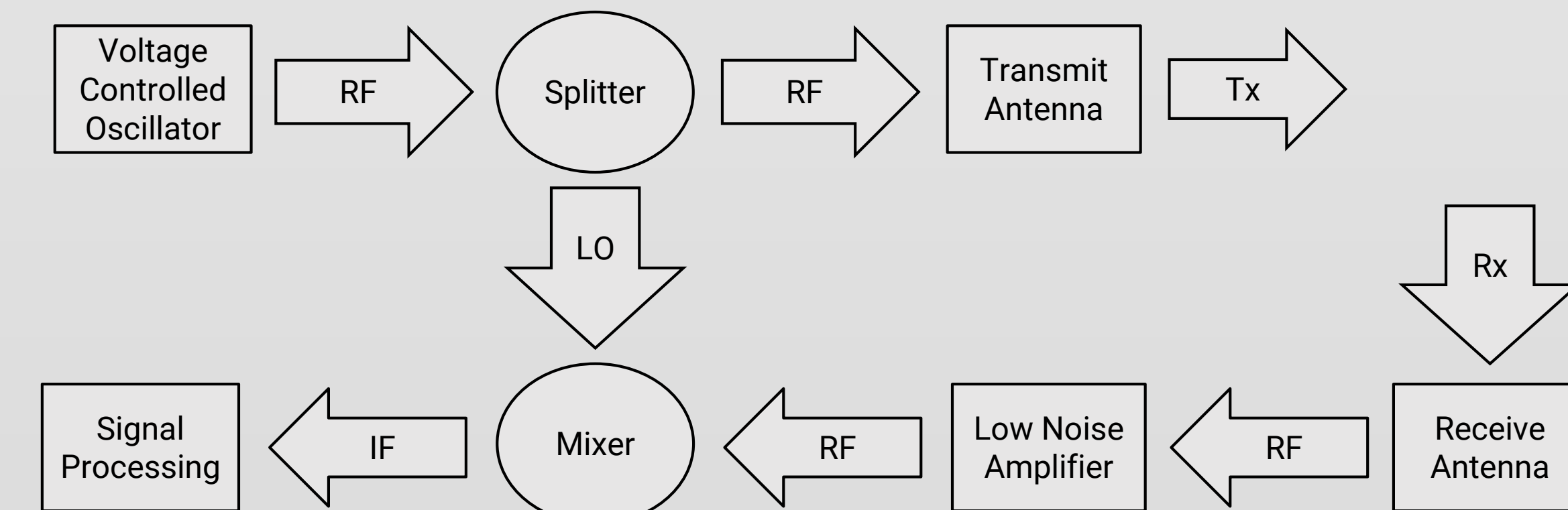


Analyze reflected and original signals to recognize and detect displacement patterns using MatLAB

Microstrip patch antenna for signal transmission and reception



MICROWAVE SYSTEM



Block Diagram of Modified Doppler Radar Microwave Circuit

High frequency Printed Circuit Board design using AutoCAD EAGLE

