APPLIED RADAR, Inc.
315 Commerce Park Rd, Quonset Point, North Kingstown, RI 02852
TEL: 401-295-0062 FAX: 401-667-2912 Internet: www.appliedradar.com

Applied Radar, Inc. FMCW Radar Kit GUI App

1. Background

Applied Radar, Inc. is developing an FMCW Radar kit targeted towards educational institutes and Radar enthusiasts. The hardware for this kit has been designed and will soon be assembled and tested. Applied Radar is looking to create a software application for the FMCW Radar kit that will allow the end user to easily collect and process data. The software platform will be Google's Android and Apple's iOS.

2. Project Goals

The overall goal of this project is to design and develop an intuitive graphical user interface for Android and iOS that will control and transfer data between the Android/iOS device and the Applied Radar FMCW Radar kit. A major task will be to stream incoming data over Bluetooth and save it to the device running the GUI. Additional tasks include pseudo-real time FFT, Doppler, and SAR processing. Secondary goals for the project are to incorporate quality assurance testing, and to create a MATLAB toolbox to be used for post processing the saved data.

3. Required Skills

This project has a large emphasis on software development. Both computer and electrical engineering skill sets will be necessary to successfully complete this project. Therefore one team member from each discipline is desired. The primary responsibilities of the computer engineer will be to establish a reliable Bluetooth connection with the FMCW kit and ensure an efficient stream of the data from the FMCW kit. Prior experience with the Android Software Development Kit will be advantageous, but is not required. The electrical engineer's primary responsibility will be pseudo-real time processing and offline processing in MATLAB. Both team members will collaborate on the interface design and any hardware assembly necessary.

Applied Radar has a team of software and RF design engineers as well as a mechanical engineer available to assist the Capstone team throughout the project. The Capstone team will be able to leverage any previously completed processing design work developed by the 2010-2011 MRDS Capstone team and the 2011-2012 Rail SAR Team.