Senior Design Project Description for FALL 2016
Project Title: Update of Industrial Controller Firmware

Supporter: Ingersoll Rand

Supporter Technical Representative: ASSIGNED

Faculty Mentor: __X__ ASSIGNED _____ TBD (check one)

Single Team __X__ Dual Team _____ (check one)

Personnel (EN/ET): __2__ E, __2__ Cp, _____ Cv, _____ M, _____ SE

(Complete if the number of students required is known)

Expected person-hours: (250 per student)

Description of Project:

This project will develop an Android application to update an industrial controller's firmware over a TCP/IP network link. The primary work will need to be done for the Android App itself, however requirements will also need to be identified and implemented on the existing industrial machine controller.

The end user of the application would be field service technicians tasked with visiting factories and other industrial sites to service large compressed air equipment. There is a push to take advantage of mobile technologies in place of traditional laptops to perform basic service functions. For this project, it may be assumed a control module to be updated is available through a Wifi connection, but access to a web site over the internet may be unavailable while at the industrial site. The intended service devices would be common mobile phones running versions 4 & 5 of Android.

Initial Project Requirements (e.g. weight, size, etc.):

1. Provide capability to download software image from a secure intranet site while in the office
2. Provide capability to select the machine to update and match to a firmware image while visiting the customer site. Many site will have multiple machines and most sites with multiple machines will have more than 1 type of machine.
3. Log the machine serial number and application update information (old version and new version)

Expected Deliverables/Results:

1. Industrial controller requirement list for the update process
2. User document for the android app explaining with the following information:
   a. How to connect to the industrial controller
   b. How to download new firmware image from a website into the Android App
   c. How to download the firmware image on to the controller and trigger an update
3. A design document explaining the application components developed
4. A functioning android application

List here any specific skills or knowledge needed or suggested (If none please state none):

1. Familiarity with Android devices
2. C/C++ coding (to understand and work with the industrial controller side)
3. Familiarity with web technologies, specifically HTML 5 and Javascript