**Medical Project Proposal**

*Timothy R. Wilkins, Whit J. Sisulak, Glen L. Riden, James J. Duggan IV*

The medical project will consist of two pieces of software. The first being a data collection tool, and the second being software that will be used to analyze data collected into a database by the first tool. The two pieces of software are described below.

The data collection portion of this project will consist of the following. There are several different medical devices to be used for this project that record various types of data. The data provided by these devices consists of different file formats, and the data is different from device to device. The data files from the device will likely be exported in one zip file that will need to be extracted and processed, however the contents of the zip files will vary. The software will have to determine the contents of the zip file and how to process the files within. Due to how long data transfers take to download the data from a device, there may be a need to convert the data from a binary format to another format in order to speed up the process of getting data off the device. The software needs to able to take in files provided by the medical devices and be able to translate them in a way where they can be stored in a database. The software needs to run in the background of a PC and wait for files that need to be processed. The software will have to interact with a database to insert the data that has been processed in order for the data to be stored for later analysis. The software should allow for some basic configuration such as designating a folder on the PC to be a listener. Files moved or copied into this folder will be processed by the software when they are added. The software should have the ability to process multiple zip files if more than one is placed into the processing folder at a time.

Data analysis software needs to be created to analyze the data that is captured from the data collection tool mentioned above. This piece of software will be a separate stand-alone application that may need to be implemented within the current UAH Medical Web Portal. The software needs to perform data analysis over different intervals of time such as one week, one month, etc. There will need to be some way to manage user access to the various medical data that has been inserted into the database that this software will access. Below are some proposed data analysis ideas that can be incorporated into the project.

* Simple Moving Average
* Data correlation discovery between the multiple devices.
* Possibly determine when an individual moves from walking to running or simply being able to identify the activities that were being performed while the data was being captured.

The data analysis possibilities will likely not fully be realized until the project team understands the different types of data that are available. Also, there will need to be collaboration with the customer for additions or changes to the data measurements provided by this software.