

Lafayette College | Electrical and Computer Engineering

# Cell Phone Application Maintenance Manual

ECE 492 Spring 2017

Assembled by Kemal Tezer Dilsiz

<b>Overview</b>	<b>3</b>
<b>Principles of Operation</b>	<b>3</b>
<b>Advanced Maintenance</b>	<b>3</b>
Compiling the code	3
Tweaking the permisisions/tools	4
Updating the code	4
Possible Problems to Fix	4
<b>Advanced Calibration</b>	<b>5</b>
Layout Files	5
Source of problems	5
<b>GitHub Repository</b>	<b>6</b>

## Overview

The purpose of this document is to give further insight into maintaining and debugging the the cell phone application that is used to monitor data in LFEV-SP17. To see the User Manual (which includes high level information about the TSV system, basic debugging and maintenance) go to the following link: [https://sites.lafayette.edu/ece492-sp17/files/2017/01/CellApp\\_Instructions\\_41717.pdf](https://sites.lafayette.edu/ece492-sp17/files/2017/01/CellApp_Instructions_41717.pdf)

## Principles of Operation

The cell phone application requires an android environment with API further than 15. This can be seen in the build.cradle file of the project. API 15 corresponds to Android 4.0.3 Ice Cream Sandwich.

All information regarding the Cell Phone Application, including the UML diagrams, charts, pictures can be found in the design review:

See: <https://sites.lafayette.edu/ece492-sp17/files/2017/02/MaintainabilityPlanFinal.pdf>  
or: <http://sites.lafayette.edu/ece492-sp17/design-reviews/>

## Advanced Maintenance

### Compiling the code

*When a future team pull the code from GitHub, there might be few possible cases:*

Android Studio as an IDE will compile the project and the only difference would be the “buildToolsVersion” under build.gradle (Module:app)

Eclipse as an IDE may want to recompile according to it’s IDE preferences, I have personally not used it and it may require some extra effort to get it working

If you decide to change the code that uses **MpAndroidCharts**, you may update the version:

- The version is under dependencies tab in build.gradle (Module:app) line 23 as of commit 52, and the section “com.github.PhilJay:MPAndroidChart:v3.0.1” should be updated
- Some parts of the code may need updates but Android Studio would take you to update requiring sections

complideSdkVersion and targetSdkVersion should stay as the latest release in build.gradle (Module:app)

## Tweaking the permissions/tools

Currently, we are using a webserver for database connection, and therefore, the application asks for the permission.INTERNET in AndroidManifest.xml file. You may want to change this  
Try to follow Dependency Injection principle while developing the application for future year maintenance

When referring to the classes under Listeners package, please be careful as to not confuse it with the Listeners from the android package

When adding a new Adapter class, always try to first try the new one with all the parts of the application before deleting the old one

## Updating the code

Try to first understand the tools that are being used in SessionManager, such as the ViewGenerators, Listeners and Tools.

SessionManager consists of a lot of AlertDialogs and they are quite messy in the code because the aim of the project was to create an application that is easily adaptable to the system in the future.

Try to pass the data into the DataHandler through dependency injection so that the program would automatically start running. DataHandler is like the bottleneck of the program, try to spot the parts where I have created or executed JsonHandler's

Try to move as much code as possible to DisplayUpdater as it was originally planned. Possibly try to make generic classes that would make the AlertDialogs more readable

## Possible Problems to Fix

Manually entering an IP address is irritating for the user and it would be much better if you could change the code so that it would connect to the static IP of the Raspberry PI of the car.

Unit testing is necessary and at the moment it is not done extensively, it may help to work on Unit Testing to track down problems in the code

# Advanced Calibration

## Layout Files

Layout files are generally made in a very generic way. Most important part is to pay attention to the

Adapter files

- Ids such as “text1”, “text2” are generic because they are used in that format by general adapters. These text parts are where the data is displayed

Menu files

- There is only one activity layout at the moment and therefore there is only one menu layout item, please check that the ids match the actions from SessionManager, onOptionsItemSelected(MenuItem item) method (line 990 by commit 52)

A lot of the views are generated dynamically in the methods of SessionManager, be careful about transferring them to xml files or updating them

## Source of problems

If any of the views generate a problem,

- look at the ViewGenerator child classes
- SessionManager data handling
- Data acquisition in JsonHandler

If you cannot resize

- Check OnLongClickListener

If you cannot update data

- Data Handler
- Json Handler
- Http Handler
- Check the steps through logging and android logcat

If you cannot add pages

- MainPagerAdapter
- MenuFragment
- SessionManager

If date system doesn't work as intended

- DateAndTimeViewGenerator
- EditTextNumeric

Things to note: RawDataGenerator is a child class of ViewGenerator but it is not as well implemented as others. You may want to pay extra attention.

# GitHub Repository

Here you can access the repository:

<https://github.com/LafayetteFormulaElectricVehicle/Cell-Phone-App>