[TITLE]

GT Off-Road Racing | Data Acquisition

[FULL NAME]

[mm/dd/yyyy]

Table of Contents

[1.0 Overview 2](#_Toc73403069)

[1.1 Introduction 2](#_Toc73403070)

[1.2 Point of Contact 2](#_Toc73403071)

[2.0 Hardware Reference 3](#_Toc73403072)

[2.1 [First section] 3](#_Toc73403073)

[2.1.1 [Subsection] 3](#_Toc73403074)

[3.0 Software Theory of Operation 4](#_Toc73403075)

[4.0 References 5](#_Toc73403076)

[5.0 Revision History 6](#_Toc73403077)

# Overview

## Introduction

Driver comms allows the driver to talk over radio by pressing a button on the steering wheel. This gives us a large advantage during competition because it allows the driver to update the team in the paddock about issues in real-time. The team can then prepare the tools and components needed to fix the issue before the car comes back to the paddock, minimizing the amount of time the car is off the track and not scoring points.

## Reminders

1. Lock the radio buttons to prevent any buttons from getting pressed.
2. Adjust the volume of the radio to a suitable level for the driver.

## Point of Contact

Ryan Chen ([rchen390@gatech.edu](mailto:rchen390@gatech.edu)): Created driver comms documentation.

# Hardware Reference

## Wiring

### Driver helmet

Inside the driver’s helmet, Rugged radio’s [quick disconnect helmet set](temp) is used. The helmet has a microphone and headphones. A quick-disconnect connector allows the driver to quickly get out of the car for egress**. The quick disconnect connector must be fully pushed in for driver comms to function**.

The default microphone for some reason does not work (someone should look into this, maybe a setting on the radio?). As a result, the default microphone is replaced with a microphone component. To wire the new microphone, unscrew the existing microphone from the set. The microphone will be soldered to the two exposed pins. Microphones have a polarity, so before soldering, test the correct orientation of the microphone by holding the pins of the microphone to pins on the set. Press the button on the set to transmit and see if you can hear your voice on another radio. Add strain relief and insulation to the microphone by cutting a hole for the microphone from a piece of heat-shrink, filling the heat-shrink with hot glue, and heating the heat-shrink to remove any air bubbles.

### Steering wheel

The existing button on the set should be replaced with a more robust button that mounts to the steering wheel.

### Radio

The radio must be securely mounted to the car in a place inside the chassis frame. In the 2021 Arizona competition, the car rolled, and the radio was destroyed because the antenna was sticking outside the frame. In the 2022 Tennessee competition, the zip-tie holding the radio was removed, causing the radio to fall out of the mount and breaking off.

# References

# Revision History

1/7/2021 (Ryan Chen) – This is an example of a revision comment. Removed parts list from references and added Excel template for Bill of Materials. Removed parts list from references and added Excel template for Bill of Materials.

2/22/2021 (Ryan Chen) – Updated automatic lists for template.