# 1. Parts List / Overview

## 1.1 Electrical Components

### 1.1.1 Brushless Motor

### 1.1.2 Electronic Speed Control (ESC)

### 1.1.3 Printed Circuit Board (PCB)

### 1.1.4 Power Electronics

Rocker switch, Barrel Jack, AC/DC adapter

## 1.2 Mechanical Components

### 1.2.1 Base

### 1.2.2 Towers

### 1.2.3 Arm

### 1.2.4 Shaft

# 2. Manufacturing & Assembly

## 2.1 3D Printing

## 2.2 Soldering

## 2.3 Assembly

# 3. Testing & Running the T-RECS

## 3.1 Software Installation

### 3.1.1 Arduino IDE

### 3.1.2 SolidWorks?

### 3.1.3 Cura?

## 3.2 Test Runs

### 3.2.1 Sensor Testing and Calibration

### 3.2.2 ESC Testing and Calibration

Reverse ESC wires for motor spinning wrong way

BIG WARNING ABOUT SAFETY

### 3.2.3 Data Logging Test

### 3.2.4 PID Controller Test

# 4. Software Overview

## 4.1 Macros / System Parameters

## 4.2 ESC Control

## 4.3 Sensor Measurements

### 4.3.1 Lowpass Filter

## 4.4 PID Controller

### 4.4.1 Timer Interrupts

## 4.5 Serial Monitor / User Interface

## 4.6 Data Logging