

## Control Award Submission Form

Team # 8696

Team Name: Trobotix

### Autonomous objectives:

- Getting down from lifter.
- Detecting and correctly hitting gold particle.
- Dropping off trophy in the correct depo.
- Partially parking in the crater.
- Possibly scoring a mineral in the lander (when applicable.)

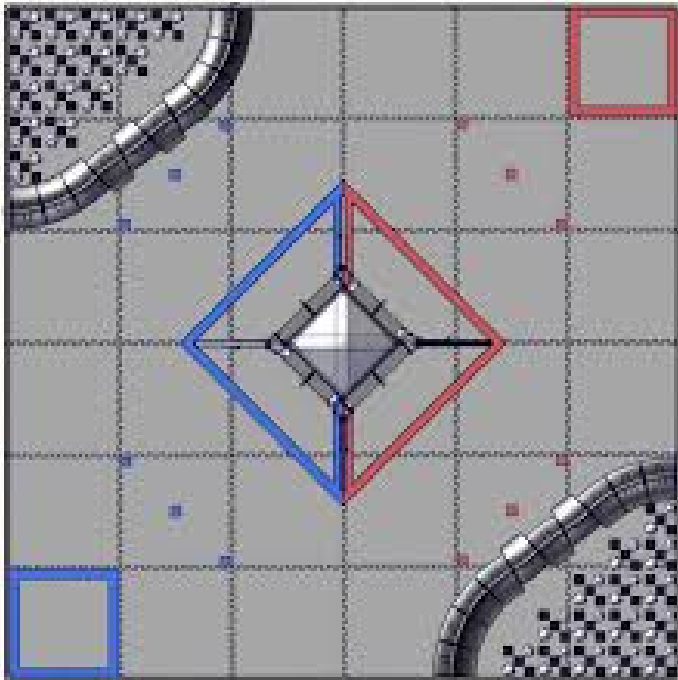
### Sensors used:

1. Phone - We are using the phone's camera to detect the gold mineral with DogeCV.
2. IMU - We use the built-in IMUs in the REV Expansion Hub to measure the current angular orientation, which will enable us to correct sliding in the robot do to weight dispersal.

### Key algorithms:

- Vision Software - We use vision algorithms based on OpenCV to detect the gold particle position.
  - For the sampling order, we use DogeCV. We initialize the program in our autonomous programs only, and before the coach hits the start button. This saves time and allows us to determine the order before the autonomous period even starts.

### Autonomous program diagrams:



### **Additional Summary Information**

[https://www.reddit.com/r/FTC/comments/a1tm34/tips\\_on\\_winning\\_control\\_award/](https://www.reddit.com/r/FTC/comments/a1tm34/tips_on_winning_control_award/)

The primary difference between our code from this year and last year is elegance. While fancy, complex code is impressive to look at, more functions give room for more errors, which leads to more testing, and more time being wasted. We wanted our autonomous code to be exact in its execution so that we could hold consistency throughout our matches and achieve a consistently high score during teleop. As well as simplifying our code, we also decided to focus on documenting our code. When looking at our code from the previous year, we constantly found ourselves at a loss as to what certain code segments were used for or how they contributed to the overall program. The more people that can understand, use, and learn from our code the more easily we can work together as a team.

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