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Autonomous Drone Control System

# Drone Specs:

* Max Flight Distance: 100m
* Max Speed: 8m/s
* Max Flight Time: 13min
* Max Flight Height: 30m
* FOV:
* Video: 720p 30fps mp4

# Goal:

The goal of this project is to create a controller with autonomous movement support using either SLAM or one’s own implementation of a navigation algorithm. Various forms of drone telemetry should be shown to the user such as: Camera Feed, Slam Map, Drone 3D sensor-visualizer, options menu. Automatic safety mechanisms should be added but user input for emergencies should take precedence.

# Project Pipeline:

Controller -> options menu -> Video Feed -> 3D sensor-visualizer + Point Cloud Map from FastDepth library -> front-facing crash prevention from measured depth values.

# What is Needed for a Minimum Viable Product?:

**Drone Interface:** djitellopy

**Controller + Options Menu + Video Feed:** GUI Library w/ event handlers

**3D Sensor-Visualizer:** 3D Library that can be used with our GUI Library (Pangolin?)

**Point Cloud Map:** FastDepth or any other monocular camera depth estimator library or build your own with the 2-frame stereo method.

**Front-facing crash prevention:** OpenCV for image processing on FastDepth depth maps.

# GUI Design:

Text Logger:

Camera

3D View

**Please Manage This Project Correctly This Time…**