Vicon Documentation

General Vicon information is provided at the end of this document. Currently, the drone uses the Vicon system to measure its x,y,z position and rates. To get this information from Vicon, first, you must place at least 5 reflective markers in a unique configuration that is not rotationally or translationally symmetric or near symmetric. Then you can create an object in Vicon corresponding to these markers, and Vicon will track the orientation and position of the object. Make sure to adjust the center of the object as necessary in the program.

The python function Vicon.py uses the library pyvicon\_datastream to define the connectVicon function (which initializes the system) and the GetLinearStates function (which reads the x,y,z position of the drone from the Vicon system. These are used in the Sensors.py functions.

Vicon Tutorial from Shared Lab Equipment Document

<https://docs.google.com/document/d/1fHMp3vmlGyi6dJ9qIUS2KroMv7qMoMEtr55u8vN9vkE/edit>

Vicon Tutorial from Nils’ Source Document

<https://docs.google.com/document/d/1F-UjonzHVK0SE9H_Aqm8hcQplmyNG6vPCL8FV-9BWhc/edit>

Passive wand

In January 2024, the Vicon active wand was plugged into the wrong charger and broken. In March 2024, Sam Moore found the calibration setting “5 Marker Wand & L-Frame” in Vicon Tracker 3.9, for which there was no documentation except following two images in old research papers, referring to a Vicon passive wand, which is exactly the same dimensions as the Vicon active wand, but with passive markers in place of LEDs. Moore constructed a passive wand by placing markers over the LEDs of the broken active wand. Using the “5 Marker Wand & L-Frame” setting and the home-made passive wand, the calibration can proceed as normal.

It is suspected that Vicon scrubbed all mention of the passive wand from the internet in order to sell a much more expensive product that functions identically. For this reason, Moore suggests to not update the Vicon Tracker 3.9 software, in case later versions remove the 5 Marker Wand & L-Frame calibration setting.

A comparison of a black and green object

Description automatically generated with medium confidenceA long black and orange object with a black handle

Description automatically generated