FRST Phase 3 Data Submission Requirements

Please carefully review these requirements to format and submit your data files to fulfill requirement C of Phase 3. It is crucial that data is submitted in this format to enable judges to accurately assess teams' progress towards FRST Challenge goals. See test_file_template.csv (available at FRSTChallenge.com/rules) for 2 seconds of a synthetic dataset with motion in x, interpolation, and a separate ground truth system.

File Name:
Each file should be submitted as a CSV file with a naming convention of `Team_name_Trial_X.csv` where "Trial_X" corresponds to the order in which video footage of the trials is included. Suggested trials to demonstrate your technology can be found on FRSTChallenge.com/rules.

Header:
Each datafile should have the following header:

`teamname, date, interpolation, ground truth, units, latitude`

`teamname`: this will be the team name, in quotes

`date`: this is the date in the format `yyyy-mm-dd` where month is a number. For example, August 10, 2022 would appear as 2022-08-10.

`interpolation`: this is a 1 or 0 indicating if interpolation is used in the time series data (1) or not (0).

`ground truth`: If there is a second ground truth system available that uses installed infrastructure for tracking, indicate 1. Otherwise indicate 0.

`units`: this should either read m or dd for meters or digital degrees.

`latitude`: this is the latitude at which the test was conducted with accuracy of 1 degree

Positional Data:
Following this header should be positional data:

`time, x-x0, y-y0, z-z0, xref-x0, yref-y0, zref-z0`

`time`: Use 24-hr notation with two significant digits after the decimal point in the second location. Using Coordinated Universal time (UTC), this will appear as `hh:mm:ss.xx` where `ss.xx` is seconds

with precision of a hundredth of a second. Time increments should be reported in quarter second increments (i.e. xx=00, 25, 50, 75). If the data acquisition rate is slower than $1/0.25$ s^{-1}, the data can be interpolated so that it is reportable at quarter second intervals. If this is done, indicate "1" in the file header.

`x-x0, y-y0, z-z0`: These indicate the positions in x, y, and z relative to a starting position x0, y0, z0. Positions can either be reported in meters (m) using precision of one centimeter or in decimal degrees (dd) with a precision of 10^{-7} degrees. The frame of reference can be determined by the competitor, although x0, y0, and z0 being all zeros will eventually be valuable in various use cases.

`xref-x0, yref-y0, zref-z0`: These indicate the positions in x, y, and z relative to a starting position as measured by a ground truth using installed infrastructure, if available. Positions should be reported in the same manner of the test positions. If a separate ground truth system is not available, duplicate x-x0, y-y0, z-z0, and put a 0 in the "ground truth" field of the header. Note that some testing trials will define some locations that will be revisited so that there are internally consistent analogs of ground truth.

Readme file

This file should describe, in words, details related to the video and data files.

For the video, please indicate if the video was collected using a mobile or stationary camera. Note the length and file size.

For the data file, first describe the content in the data file header. If interpolation is used, indicate the data acquisition rate with instructions of how to discriminate between raw data and interpolated data. For example, if 1 s^{-1} data sampling is used, state that all data samples ending in .00 are raw data, for example.

Include a description of the frame of reference, such as whether the frame of reference is aligned with global coordinates or a building's frame of reference. If using dd units, confirm that you are using latitude, longitude, elevation.

If applicable, describe precisely the positions of reference marks mentioned in the Phase 3 Testing Script.