Time-Series Demonstration

Scope:

I will demonstrate how a 3-D Printer would catch errors within a series of time rather than with pre-registered labeled data. I will install listeners that watch data variables shown below. Not all data is provided by the printer, but due to underlying constraints, it will all be simulated.

⭐ **Note**

Data isn't real

This is all simulated. Real data will be unattainable without a 3D Printer.

Real Printer Reports

Mauricio Martinez
nozzle_temp_c
(built in thermistor)

Mauricio Martinez
bed_temp_c
(built-in thermistor)

Mauricio Martinez
print_speed_mm_s
(commanded feedrate known)

Can be Calculated by Software

Mauricio Martinez
t_sec
(track in monitoring script)

Mauricio Martinez
layer_index
(from time, height, or G-code parsing)

Mauricio Martinez
print_speed_mm_s
(from G-code parsing)

Mauricio Martinez
layer_height_mm
(slicer setting, known in advance)

Mauricio Martinez
faults_active
(for demo only)

Mauricio Martinez
extruder_flow_mm3_s
(derived from commanded extrusion & nozzle size)

Requires extra Sensor Hardware

Mauricio Martinez
ambient temp
(only high end printers)
(external thermistor/Arduino)

Mauricio Martinez
motor_current_x_a
(requires current sensor/stepper driver feedback

Mauricio Martinez
vibration_rms_g
(accelerometer on printer body)

Mauricio Martinez
motor current_y_a

Mauricio Martinez
motor_current_z_a