Timing Module for NPAS

Autonomous Monitoring and Control of Rocket Test Systems Internship

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Background

• High Pressure Gas Facility
  • INSIGHT
  • Gensym G2
  • D2K

• Timing Module

• 3 potential uses
  • Usage Timing
  • Sequence Step Timing
  • Valve Cycle Timing
Overview

- Modular and generic
  - Not application specific
  - Can be used in any G2 or NPAS application
- Code is easy to read and is properly commented
  - Enables others to understand and evolve the code without spending much time in deciphering the code
Stopwatch (State-timer)

- Tracks attribute value (e.g. when a pump is on or off)
  - Define values for an on cycle
  - Timer will tell you how long the attribute had those values
- Can optionally store history
  - Stores start and stop times of each cycle
  - Can later perform analysis on history
    - Runtime
    - Duty Cycle

#32  1:51:45 p.m.  duty cycle is 80.832%
Countdown

- Sets a countdown
  - Performs an action at time up
- Delayed procedure invocation
  - Executes a procedure after a set time
- Features
  - Reset
  - Pause
  - Stop
  - Override countdown with new time
Documentation

• User Guide
• Activity Diagrams
• Commented Code
• Possible Future Improvements
Growth

• Learned a new language (G2) and gained experience in object-oriented programming
• Improved ability in working independently
• Observed integration of NPAS implementation for a space habitat module at JSC iPAS
• Firsthand experience of Stennis site
Questions?