# WWU WIND FEED

Software System Review

# Summary

The WWU Wind Feed is a tool to deliver wind information to users of the WWU boathouse on Lake Whatcom.

The system will collect wind speed data and upload it to the Internet at regular intervals.

# Tools

Coding: TI Code Composer Studio

Debugging/Programming: TI Stellaris in-circuit debug interface , JTAG

Revision Control: eGit

Testing:  DMMs, oscilloscope, air compressor, serial terminal, web browser.

# MCU Resources

**CC3200**

Bus Frequency:  80 MHz

RAM:  need 2kB,  have 256kB

ROM: need 38kB, have 64kB

On-chip resources: ADC, timer, periodic interrupt, ADC interrupt, On chip WiFi protocol stack.

# Kernel and Tasks/ISRs

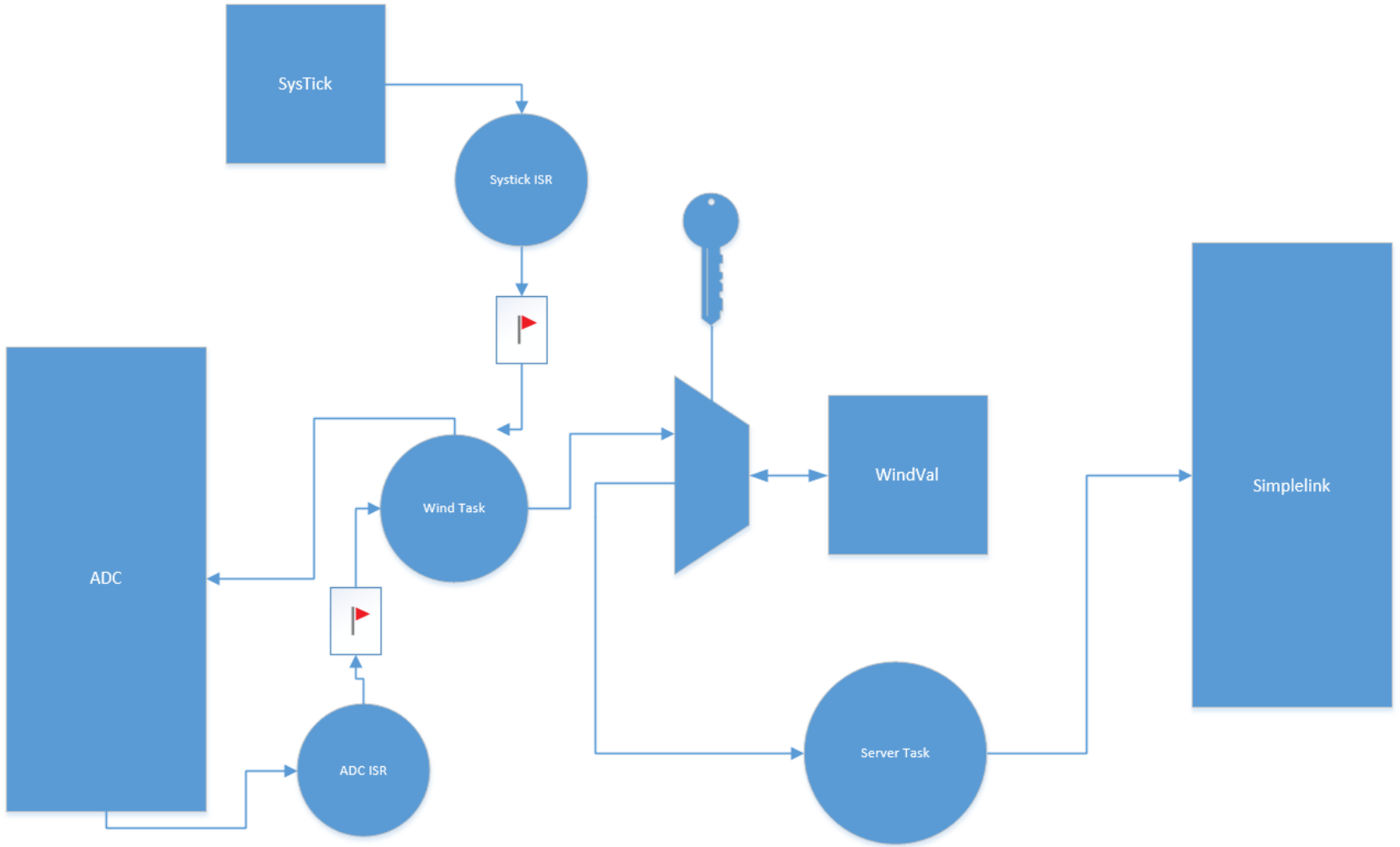
- TI RTOS

| Task | description | priority | Execution period | Execution time | Execution period with ISR | Cpu load |
|---|---|---|---|---|---|---|
| Server task | Serve webpage | 2 | sporatic | depends | NA | ~75(?) |
| Wind task | Read ADC, calculate wind data | 1 | 30 min | <10 ms | <10ms | 0 |
| Startup task | Startup code, initialization | NA | NA | <20 ms | NA | NA |

# Modules and Library

| Module | Tasks | Public Functions | Public Data | Prewritten? | Licensing |
|---|---|---|---|---|---|
| main.c | Startup task, wind task, server task | Getwind() | WindVal | no | NA |
| adc.c | NA | NA | NA | yes | TI open |
| simplelink.c | NA | NA | NA | yes | TI |
| network_common.c | NA | NA | NA | yes | TI |
| smartconfig.c | NA | NA | NA | yes | TI |
| systick.c | NA | NA | NA | yes | TI |
| interrupt.c | NA | NA | NA | yes | TI |

# Inter-Task Communications



# Testing and Verification

- Verify periodic updating of wind data with web browser

- Compare  published wind speed with forecasts/estimates
- Verify performance at high wind speeds with air compressor.
- enclose device and test reliability in outdoor environment
- Measure device power consumption