

Notes for OHH Meetup + Discussion

Subject: Paul Tanner Home Systems

Background ("Phase 1"):

- a) Have built a PVR using Windows Media Center and Black Gold tuner card. Reasonably quiet and does the job but it consumes a lot of power, starts slowly and needs periodic rebooting.
- b) Have built an energy monitor for gas and electricity using Arduino with Ethernet Shield and meter pulse outputs. Internal and external temperature sensors. Does the job but can't manage the data input from CurrentCost. Has to sit in meter cupboard so program loading difficult.

Requirement ("Phase 2"):

1. Better integrated solution
2. PVR to be always on so need quiet, lower power box.
3. Need PVR software without memory leaks to avoid rebooting
4. Add Freesat

5. More manufacturable¹ platform than Arduino. Single board solution preferred.
6. Add actuator outputs, preferably wireless to power relay, eg for heating
7. Wireless connection to sensors preferred.
8. Faster serial input to permit use of CurrentCost
9. Operating system to allow simultaneous polling of multiple sensors including noise-edge pulsed and pulse width modulated.

Thoughts:

PVR box based on linux; Separate sensor/actuator box based on a microcontroller with on-board Ethernet. I like the look of [NXP LPC236x](#) with its interesting programming model, especially if one could load a threading O/S on it. Tether via USB for program loading. Sensors/ actuators should still work when PVR box dies or powered off.

Would like remote sensors but at minimum cost. Could use technology like CurrentCost with simple, low power circuits to handle contact bounce², PWM³ etc.

Would need to completely rewrite the microcontroller code but it's quite simple and will be more so with hardware debouncing.

PVR box could house a [small ITX board](#) with, say Ubuntu; software could be one of the [open source PVRs](#).

Discuss ☺. In particular, how could this project intersect with @folknology's hardware bus?

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¹ Want to set up a network of comparable installations (friends and associates).

² Currently testing one

³ Is that wireless technology suitable for non-pulsed data?