Attendees: BT, JH, RT, RN, NM, RF

Topics: Team Contract/ Mission Statement

Mission Statement

* Money- $2500 from either ECE or OEDK
* Petty cash? OEDK will reimburse but not sales tax
* No cover letter
* Won’t be due for another week- kicking the due date out (10/8?)

Talked to Gene and Flood team

* Flood team said 25mA, didn’t have range test to
* Need to get concrete numbers for our application and parts
* MSP430 on its way out, new designs recommended to use 432 ARM core
  + Port code easily, same regs
  + Gary- how important is portability? You can just recompile
  + Jen- you would have to rewrite code from an MSP430 to arm core
    - Nathaniel: Different low power modes, clock control
  + Gary- couldn’t that just get handled in a different header file?
  + Jen- nah fam, it was setting particular bits to registers
  + Brady- Gene thinks end goal is arduino-type environment
  + Gary- so hope is arm specific idea so it’s portable to different arms? Jen yeah
* Jen found Microchip atmel ARM M23- reduced memority, lower power (very low mA/mHz)
* ARM M0+ more memory, slightly higher power
* Hopefully compatible with generalized IDE, code composer/eclipse? Or Arduino?
* Robby- if you want to quick setup the Feather is nice (Adafruit)
* NM- Get external memory- spi, i2c, flash, etc
* GW- watch out it might be slow- need to write specific code to R/W data
* RN- range chart for solar cell within our size constraint- numbers based off best-case MAX voltage, actual would be 70-80%
  + Need to get solar cells as soon as possible to see for ourselves
  + Promising considering energy harvesting chips are
  + Outdoor lighting > indoor
* BT - power storage
  + 1st proto: Li-ion Coin batteries (Illinois Capacitor Rechargeable) ~$14
  + Future: supercap + battery
  + Zpower “a little disappointing”- can produce “quite a bit” of energy ($$$ did not post price)
  + Talking to TI employee for battery management- issue: QFN
  + Make your own eval board or build your own setup
  + GW- you can order PCB with exact footprint you need then flow
  + JH- QFN solder, use solder paste
  + BT- wants to solder QFN

Flood team

* RF: sensor drawing only 25mA (during transmit), but have not done range testing
* Team using analog sensor
* Would like to verify again to “sharpen measurements”
* GW: think it should be ~100mA or more, so this seems off
* GW: arduino alone does ~25mA

Discussion with Gene

* BT: most confusing meeting of my life
  + It was good though, a good meeting
* RN: microprocessor tricks are nothing compared to power to transmit LoRa
* BT: Gene wants an interface that’s scalable- different transducers
  + We want it small, portable
* BT: Given distance/size constraints of Flood team, we should use different application at first
* RN: if you want ultra-low power, not doing >100m
* Applications- tighter cluster of nodes
* RN: we talked to Flood PM- we might not replace, but are *compatible*
* RN: how does GW envision our project helping Flood?
  + We need to think about modularity, scalable
  + Flood is trying to get specific to their application
  + GW: how is what we are doing improve the space?
* RF: make it modular (swap out transducer, xmit board)
* RN: important part is the interfacing
* GW: octavo wants written abstractions so you can swap our pieces
* BT: possibility to interfaces with different types of
  + Worry about sensor/processor, input/output
  + Connect the boards all externally
  + GW: how does that meet Gene’s vision?
    - Does not fit all-in-one package
    - RN: its all a sales pitch, but Gene will like if we can meet criteria
  + JH: are we making it generic so we can redesign it, or so a USER could redesign
    - More attractive for user to be able to plug n play
  + BT: could do 2 types- long range and short range (bluetooth to phone)

|  |  |  |
| --- | --- | --- |
|  | A- long range | B- short range |
| power | Big solar cell |  |
| radio | LoRa + antenna, low data rate | Bluetooth (BLE) (small antenna), high data rate |
| processor | ---- | ---- |
| sensor | ---- | ---- |