

Potential Cases:
Hammond HM1071-ND

NucleoPins



NucleoPins.sch

Sensors



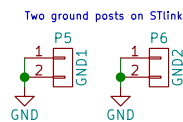
Sensors.sch

Power



Power.sch

Ground Connections



S1

OSHW Symbol

Lower Voltage, Lower Current, Upper Current:

RFM69HW - 2.4V

MT3329 - 3.2V (50mVpp ripple)

S25FL127S - 2.7V

Note: By the time the 3.3v rail starts to droop, we would be well into the dead zone for the batteries. By measuring the batteries we can see how long we have to live.

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Sheet: /

File: ProtoBoard.sch

Title: Expansion Board For STM32 Nucleo-L152RE

Size: A Date: Monday, June 01, 2015

Rev: AB

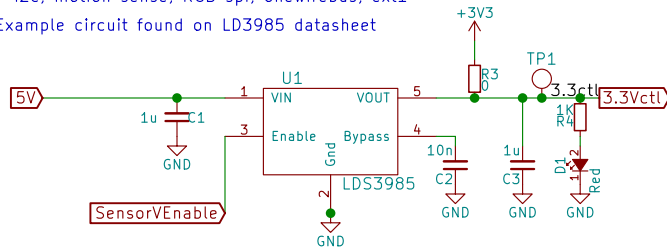
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Id: 1/5

3.3 Regulator for Powering and DePowering Offboard Sensors

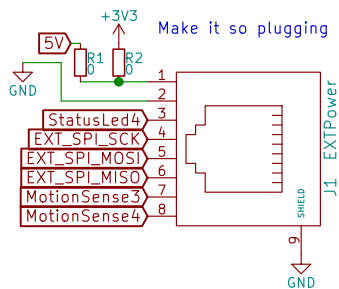
Add 3.3V regulator for controlling
i2c, motion sense, RGB spi, onewirebus, ext1

Example circuit found on LD3985 datasheet



Expansion port for Power and Power Control

Make it so plugging in EXT into this one works



Current Sensing Adapter

Idea seems simple, but implementation is complicated.
Better to make a stand alone system that can perform
the measurements and return them to us.

Using a MAX4239 with a ADS1240

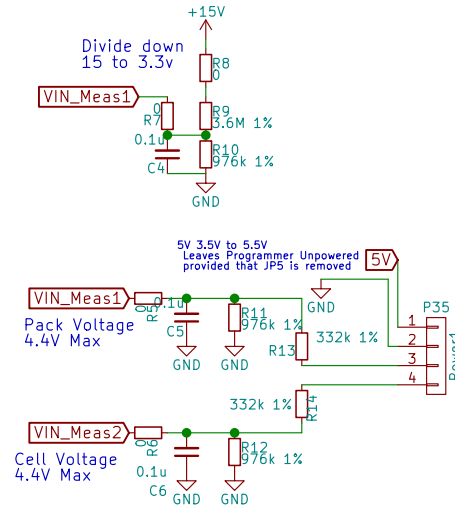
Can perhaps use a bipolar to unipolar opamp setup to get the voltage we need

Lithium Charging Circuitry

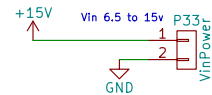
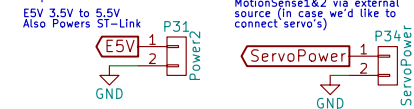
Could use an MCP73831 to charge a lithium battery while running from that
battery. 12-14V from car steps down to 5V to charge battery.

Voltage Measurements

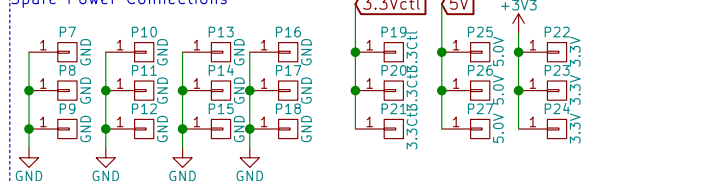
Can choose between measuring 15V and 4.5V



Power Input Options



Spare Power Connections



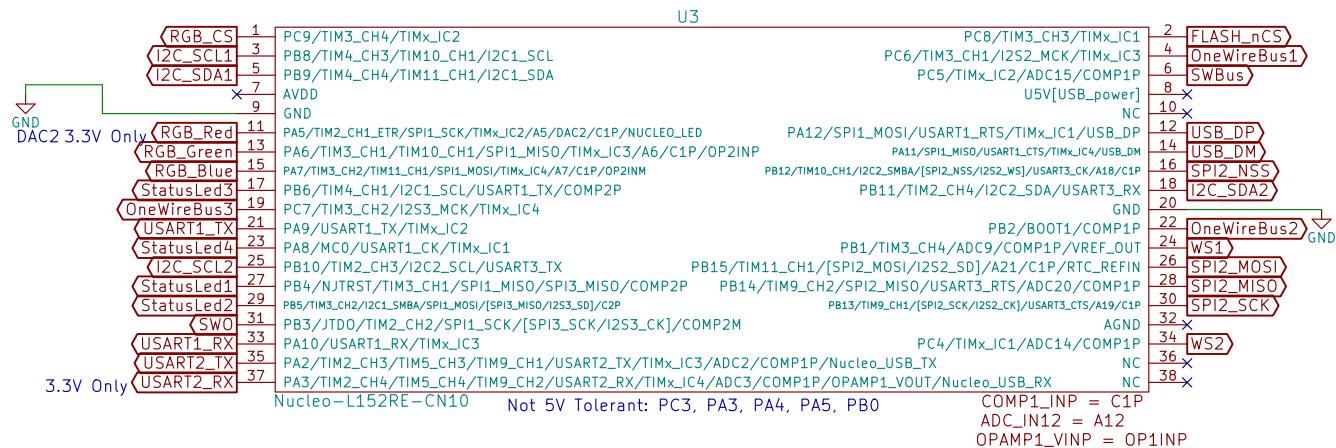
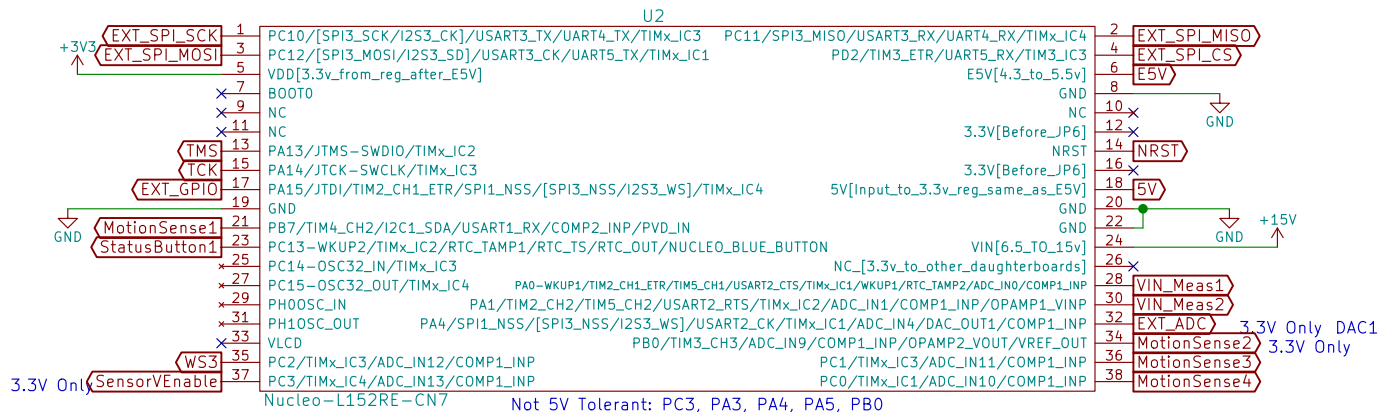
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Sheet: /Power/
File: Power.sch

Title: Expansion Board For STM32 Nucleo-L152RE

Size: A	Date: Monday, June 01, 2015	Rev: AB
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File: NucleoPins.sch

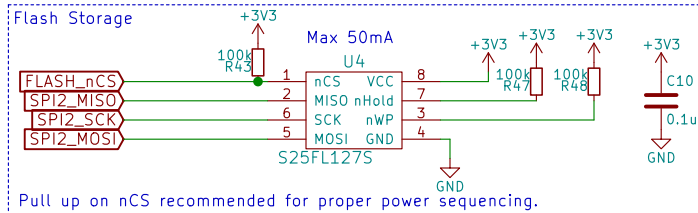
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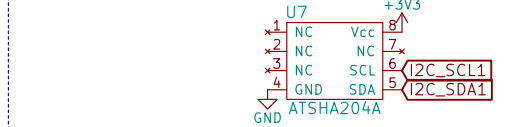


Id: 4/5

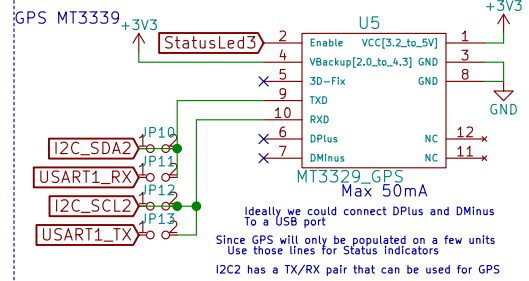
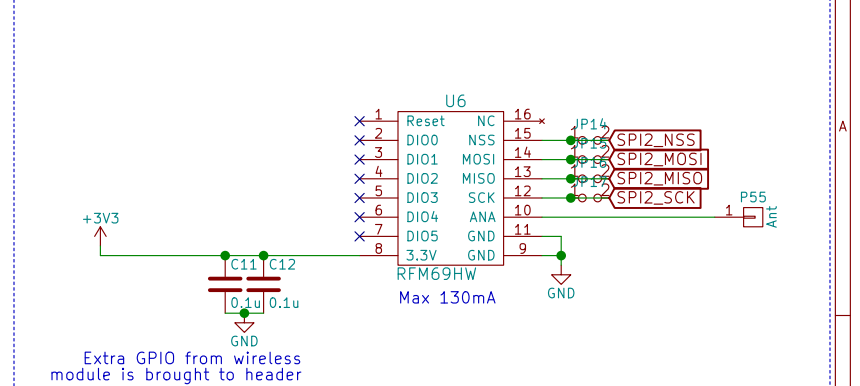
Flash Storage



SHA-256 Crypto Chip, RNG, and Secure 4.5Kb EEPROM

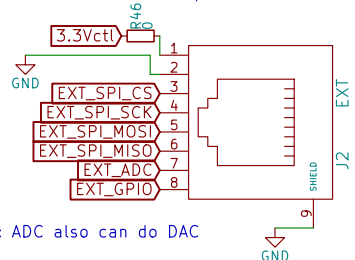


Wireless



SPI Bus

Ensure GPIO or ADC chosen can be source of interrupts



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Id: 5/5