

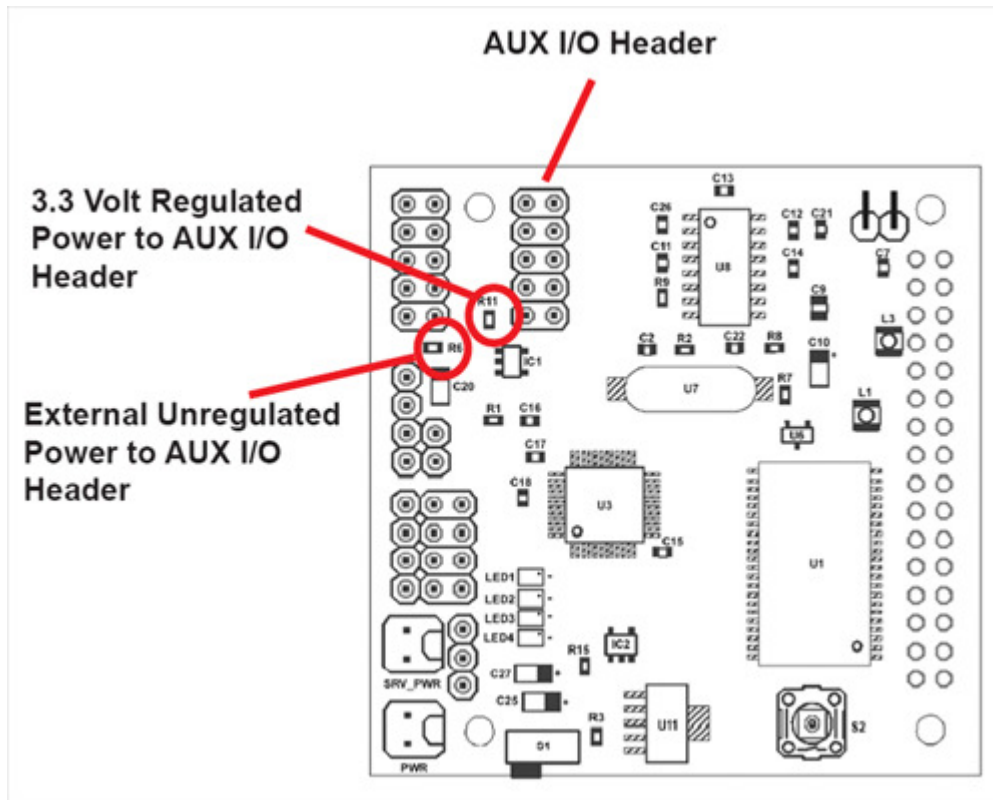
## Telos or Tmote Sky

*This page has been posted in response to many emails we have received asking about interfacing the Tmote Sky boards with the CMUcam3. We have tested that the power connections work, however we have not run any application code on the Tmote boards to communicate with the CMUcam3. From discussions with other people the configuration seems to be functional, but please use with caution.*

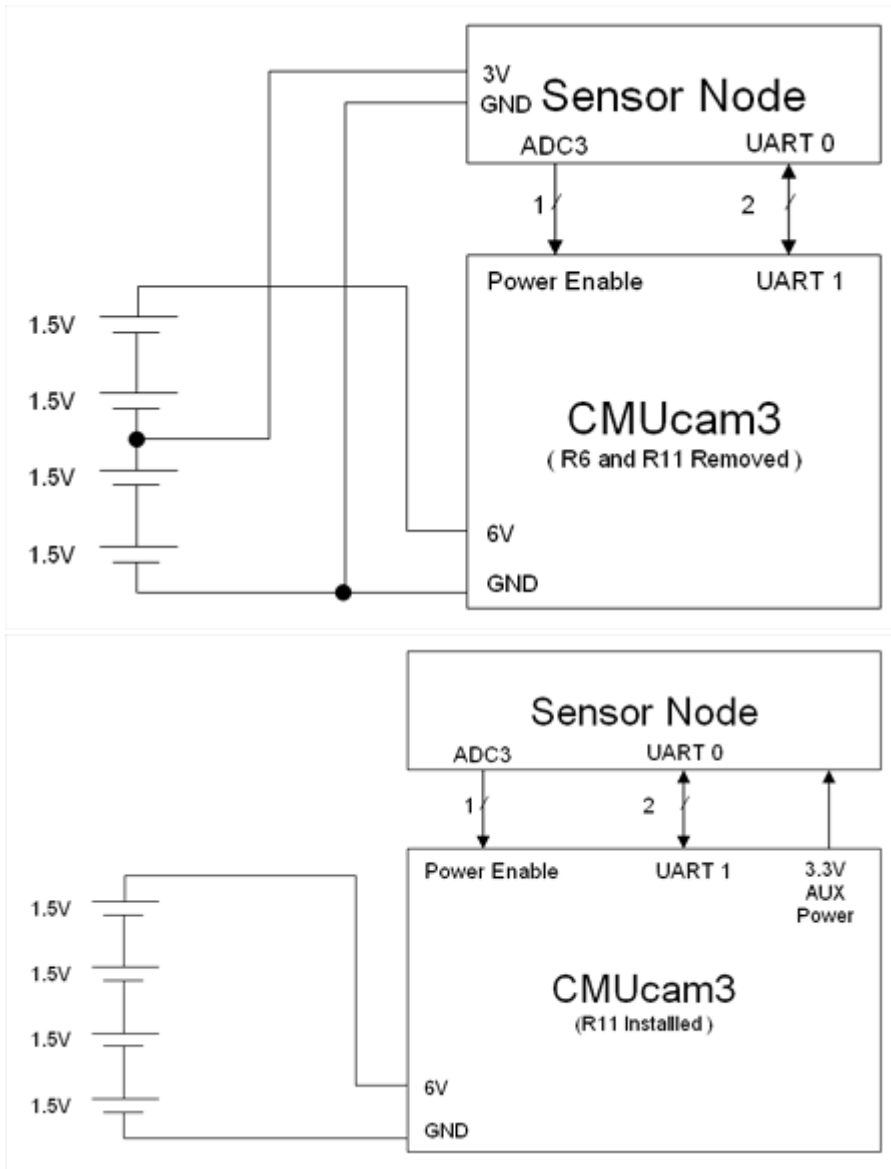
The CMUcam3 can connect to either the Tmote Sky or Telos board using the CMUcam3's AUX I/O header. This allows the TTL UARTs to be connected as well as the board power and various other GPIO pins. We currently do not have any sample code available for TinyOS, but (as always) we would be interested in posting anything that people contribute.

**Warning: Do not connect a Tmote Sky board directly to the CMUcam3 and power both devices off of an AC adapter with resistor R6 installed!**

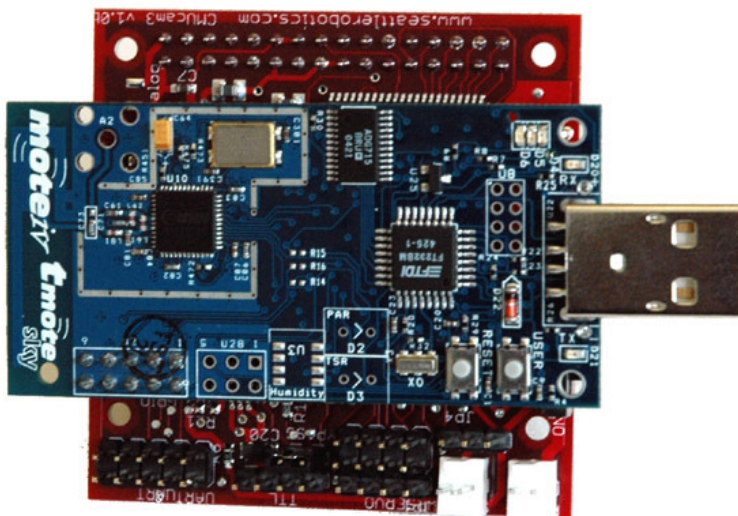
By default the *AUX POWER* pin on the CMUcam3's AUX I/O header is directly connected to the power input to the CMUcam3. This allows an external connection to the AUX I/O header to power the CMUcam3 board. In many cases when the CMUcam3 is given a large power supply such as from an outlet, you may want to change this configuration to power the wireless node directly from the CMUcam3's internal regulator. This can be done by moving the resistor at R6 to R11. It is also possible to run the CMUcam3 and the sensor board independently by removing both R6 and R11. This can be a useful configuration if you would like the sensor node to be able to power the CMUcam3 on and off using the Power Enable pin on the CMUcam3.

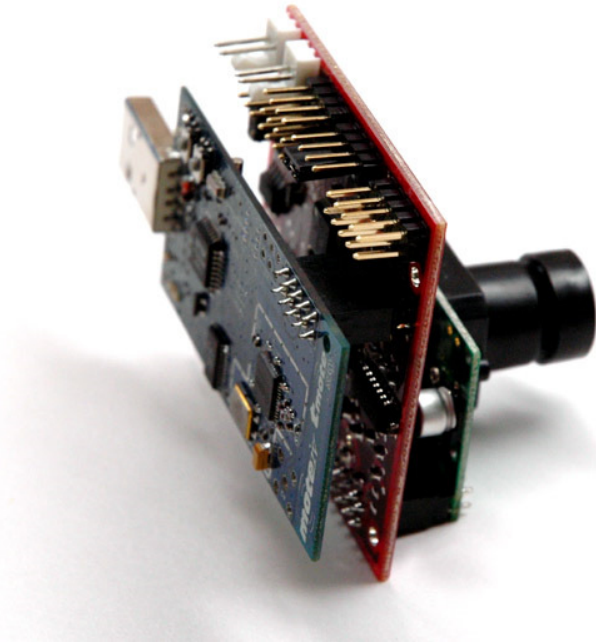


Below are two examples of how to power the CMUcam3 and a sensor node from battery supplies. The left option allows the sensor board to remain on at all times such that it can gate the power supply to the camera. The right option is simpler to implement, but does not allow for the camera to be powered down into its lowest consuming sleep mode. This option is ideal if the CMUcam3 is getting supplied from an AC adapter or other larger source of energy.

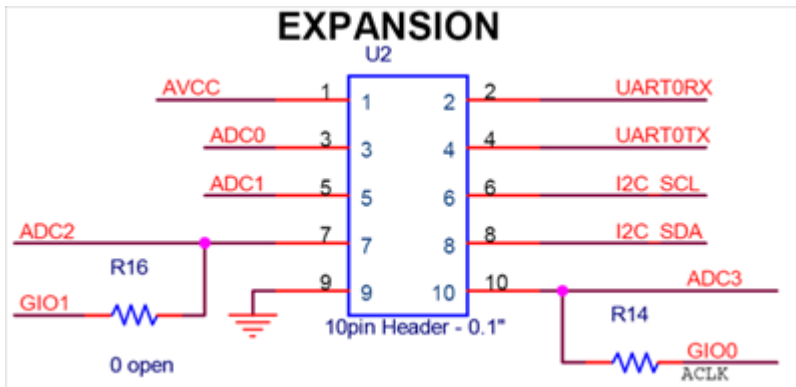


This images shows how to connect a Tmote Sky board to the CMUcam3. Note, that the battery has been removed and a receptical (S6105-ND from [Digikey](http://www.digikey.com) ) has been soldered onto the bottom side of the Tmote Sky board.

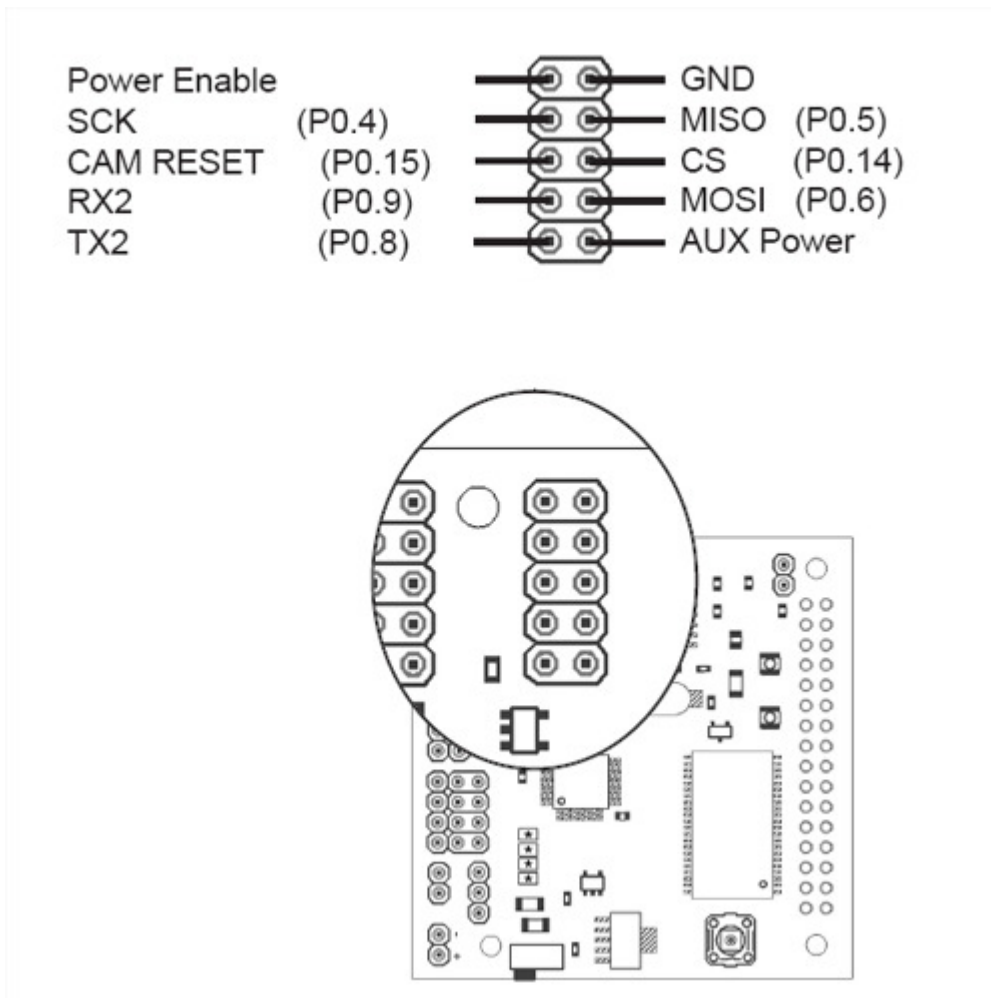




The 10-pin expansion pinout from the Tmote Sky.



The AUX I/O pinout from the CMUcam3 matches in the same way as shown in the above photos if the Tmote Sky header is rotated clockwise by 180 degrees.



The pin mapping is as follows (CMUcam3 -> Tmote Sky):

- Power Enable -> ADC3
- GND -> GND
- \*SCK -> I2C\_SDA
- \*MISO -> ADC2
- CAM Reset -> I2C\_SCL
- \*CS -> ADC1
- RX2 -> UART0TX
- \*MOSI -> ADC0
- TX2 -> UART0RX
- AUX POWER -> AVCC

**\* These pins are connected to the SPI bus. Make sure to set them as input on the sensor node when the CMUcam3 accesses the SD/MMC card slot.**

#### Attachments

- [tmote\\_back\\_sm.jpg](#) (102.3 kB) -"Tmote Back", added by agr on 04/09/07 13:42:37.
- [tmote\\_side\\_sm.jpg](#) (61.7 kB) -"Tmote Side", added by agr on 04/09/07 13:42:51.
- [aux\\_io\\_power.png](#) (94.0 kB) -"AUX I/O power", added by agr on 04/09/07 13:46:01.
- [CMUcam3\\_aux\\_io.png](#) (81.8 kB) -"CMUcam3 AUX I/O", added by agr on 04/09/07 13:58:43.
- [seperate\\_supply.png](#) (14.3 kB) - added by agr on 04/09/07 23:32:38.
- [joint\\_supply.png](#) (12.0 kB) - added by agr on 04/09/07 23:32:51.
- [tmote\\_sky\\_connector.png](#) (26.6 kB) - added by agr on 04/09/07 23:42:53.