

Hands-on: Arduino Yun

**Sierra Wireless is building
the Internet of Things.**



Setup : Wakaama client

- <https://github.com/msangoi/wakaama/wiki/Run-Wakaama-on-the-Arduino-Yun>
- TL,DR:
 - Download openwrt
 - Clone wakaama (<https://github.com/msangoi/wakaama/tree/yun>)
 - Setup cmake
 - Build
 - 'scp' to device
 - `./lwm2mclient -h leshan.eclipse.org -n <yourid>`
 - <https://leshan.eclipse.org/#/clients/<yourid>>

IPSO Objects

- Common set of entities with LWM2M objects, resources
- <https://github.com/connectIOT/lwm2m-objects/blob/master/ipso/1.0/IPSO-Smart-Objects-1.0.pdf>
- Will implement :
 - Digital output (using D13 LED)
 - Digital input (using switch on D3)
 - Temperature Sensor (using sensor or A0)

lwm2mclient

- Example client in C
- Listen to socket and stdin
- Flags to enable GPIOs
- Usage :
 - “./lwm2m -h leshan.eclipse.org -n <id> -i” (input on D2)
 - “./lwm2m -h leshan.eclipse.org -n <id> -a” (input on A0)

LininoIO

- Exposes AVR atmega32u4 GPIO as Linux CPU's GPIOs
- Read / Write values as plain text files
- http://wiki.linino.org/doku.php?id=wiki:lininoio_sysfs
- TL;DR
 - `echo 115 > /sys/class/gpio/export`
 - `/sys/class/gpio/D13/direction`
 - `/sys/class/gpio/D13/value`
- Might fail

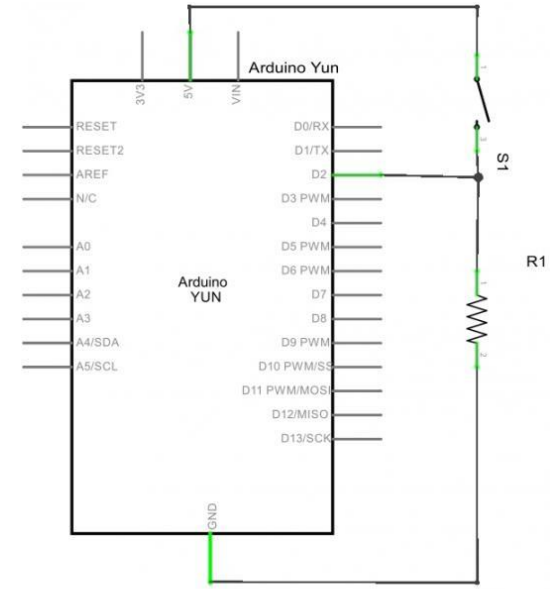
GPIO : Digital Output (LED)

- Writable resource /3311/0/5850 mapped to LED L13
- `echo 115 > /sys/class/gpio/export`
- `echo out > /sys/class/gpio/D13/direction`
- `cat /sys/class/gpio/D13/value`
 - 0 => boolean value “false”, light off
 - 1 => boolean value “true”, light on
- Toggle in “IPSO Digital Output / Digital Output State”

GPIO : Digital Input (Switch)

- Readable resource
/3200/0/5500 mapped to D2
- /sys/class/gpio/D2/direction
- /sys/class/gpio/D2/value
- Displayed with
 - IPSO Digital Input
 - Digital Input State (true / false)
- ./lwm2mclient ... -i

<http://labs.arduino.org/ArduinoYUN+Button+Example>

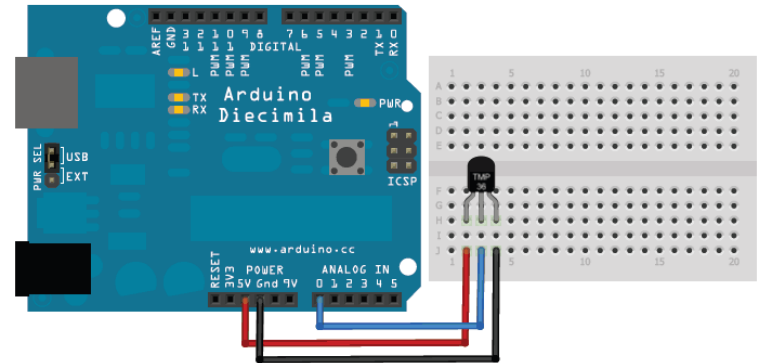


fritzing

GPIO : Analog Input (Temperature Sensor)

- Readable resource
/3303/0/5700 mapped to A0
- /sys/bus/iio/devices/iio:device0/enable
- /sys/bus/iio/devices/iio:device0/in_voltage_A0_raw
- Displayed with
 - IPSO Temperature Sensor
 - Sensor Value

<https://learn.adafruit.com/tmp36-temperature-sensor/using-a-temp-sensor>



Thank You

