Logging Android sensor data with Automate

I've been searching for a long while for a sensor data logger app; it turns out Automate can do this just fine with a lot of extra, so here's my solution for a Galaxy S4.

tl;dr: download the flow file here: http://llamalab.com/automate/community/flows/12639

Automate[^1]

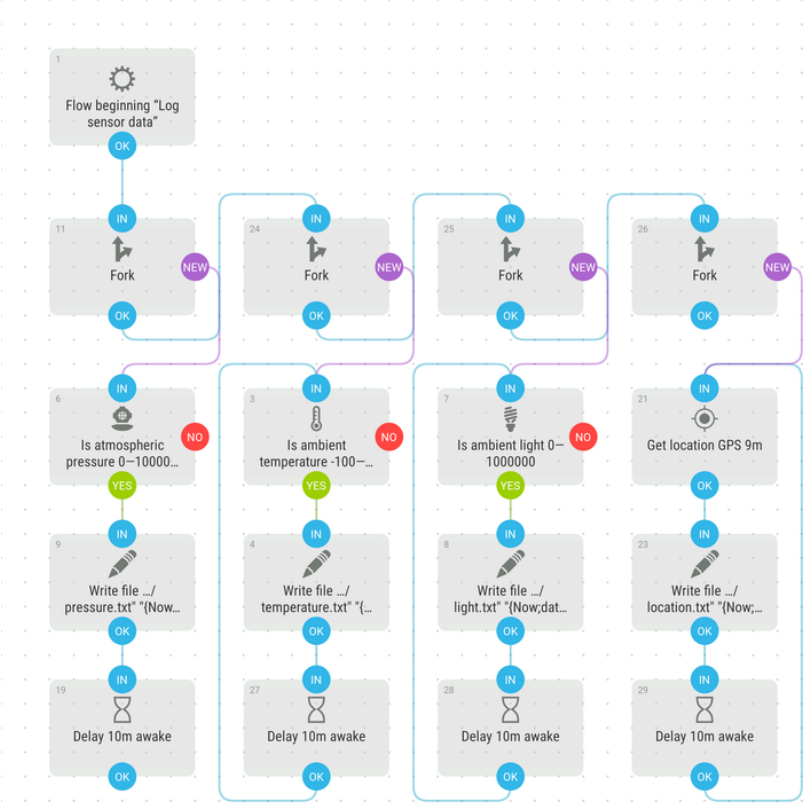
A long, long time ago I tried the ancestor of this app, when it was simply called llama. Since then it look like I come a long way, and now it resembles something I last saw when I learnt how to program PLCs[^2]

So, the short story: you have building blocks, such as, for example, get current location, write a file, call a URL, etc, and these blocks can be piped into eachother, so the output of one can be used in another - just like | in the UNIX world[^3].

Sensorlogger flow

I've put this together for a Samsung Galaxy S4 - it's a terrible phone, but has a decent amount of useful sensors, including humidity, ambient temperature, light, etc, and it's pretty cheap these days, especially one with a cracked screen. *I'm also testing if it's possible to be used as a security camera instead of my current Raspberry Pi solution, but that is not stable yet.*

So, sensor logging: after the start I fork the process into threads; each thread is for a single sensor, that will log into a file for itself.



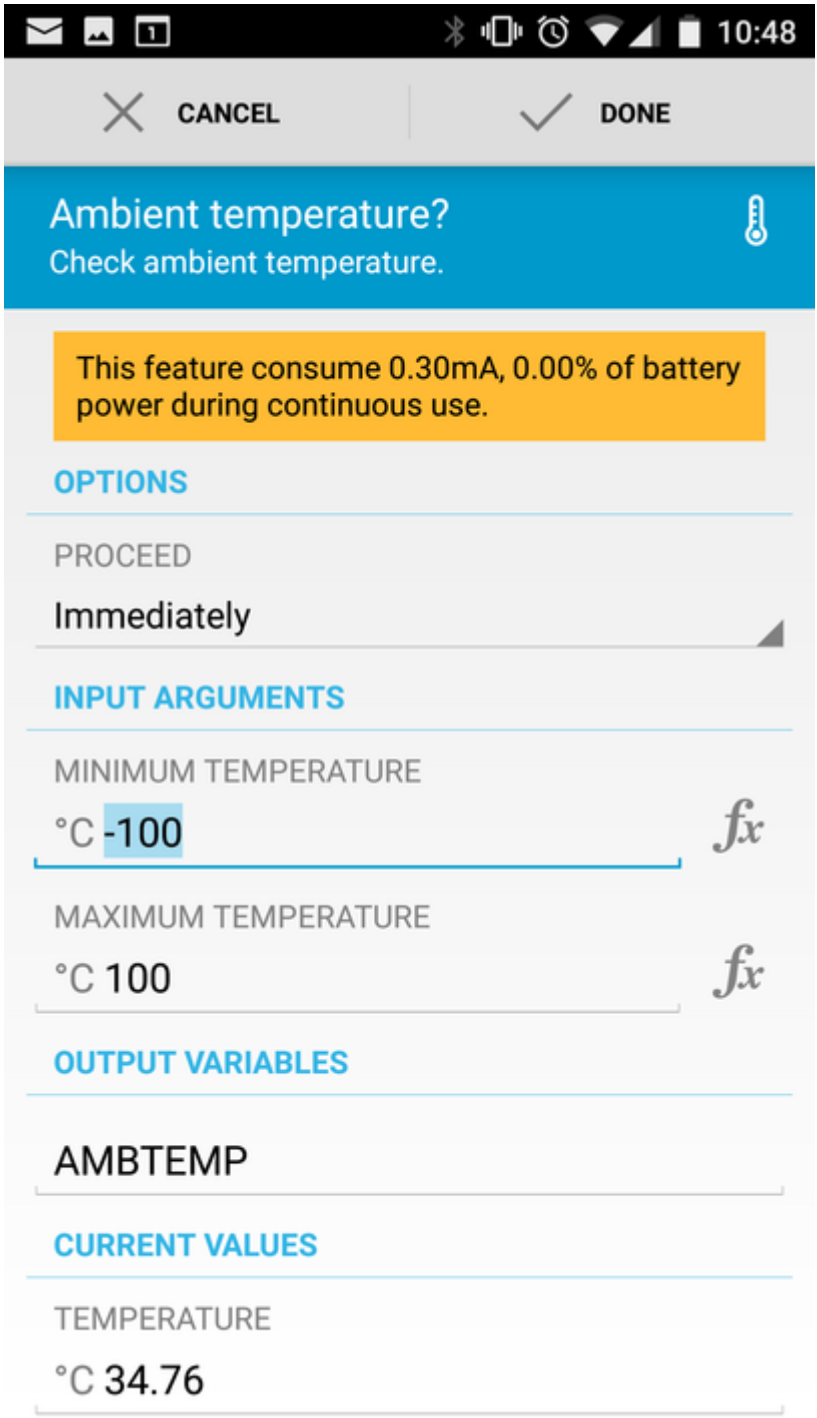
Sensor logging with Automate flow diagram

The files look like:

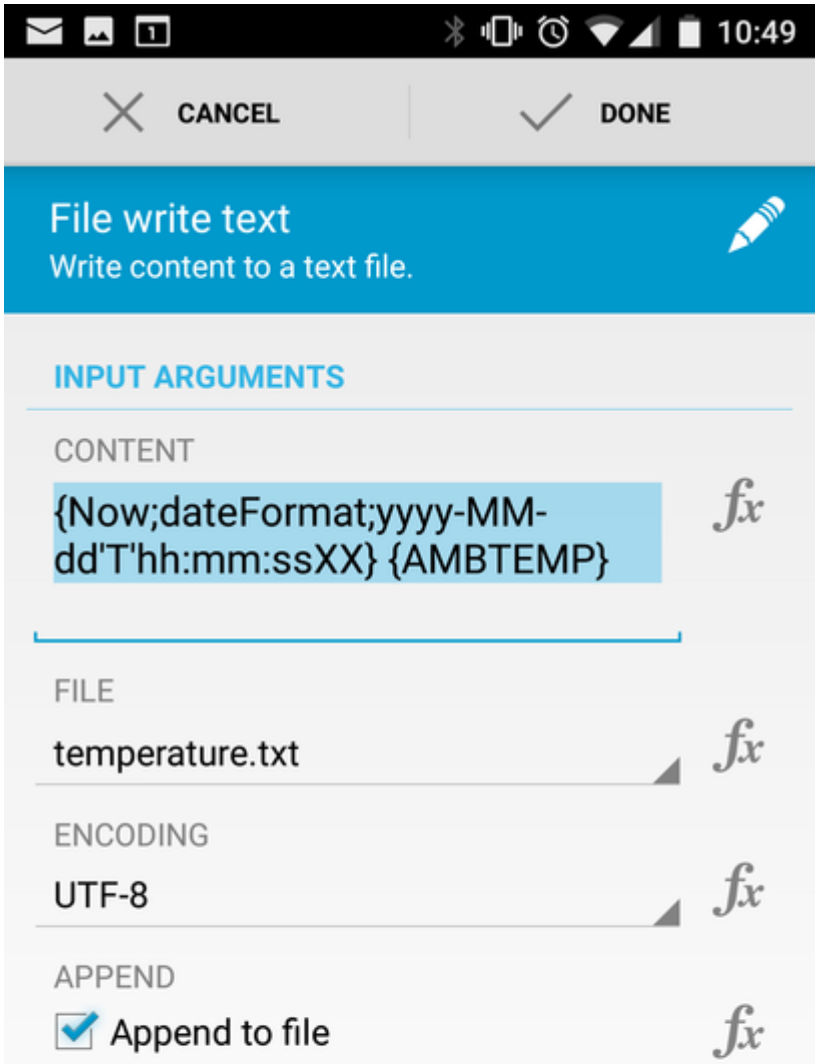
```
2017-05-26T10:15:30+0100 10.23234220
```

where the first element is an ISO 8601 timestamp and the second is the value from the sensor.

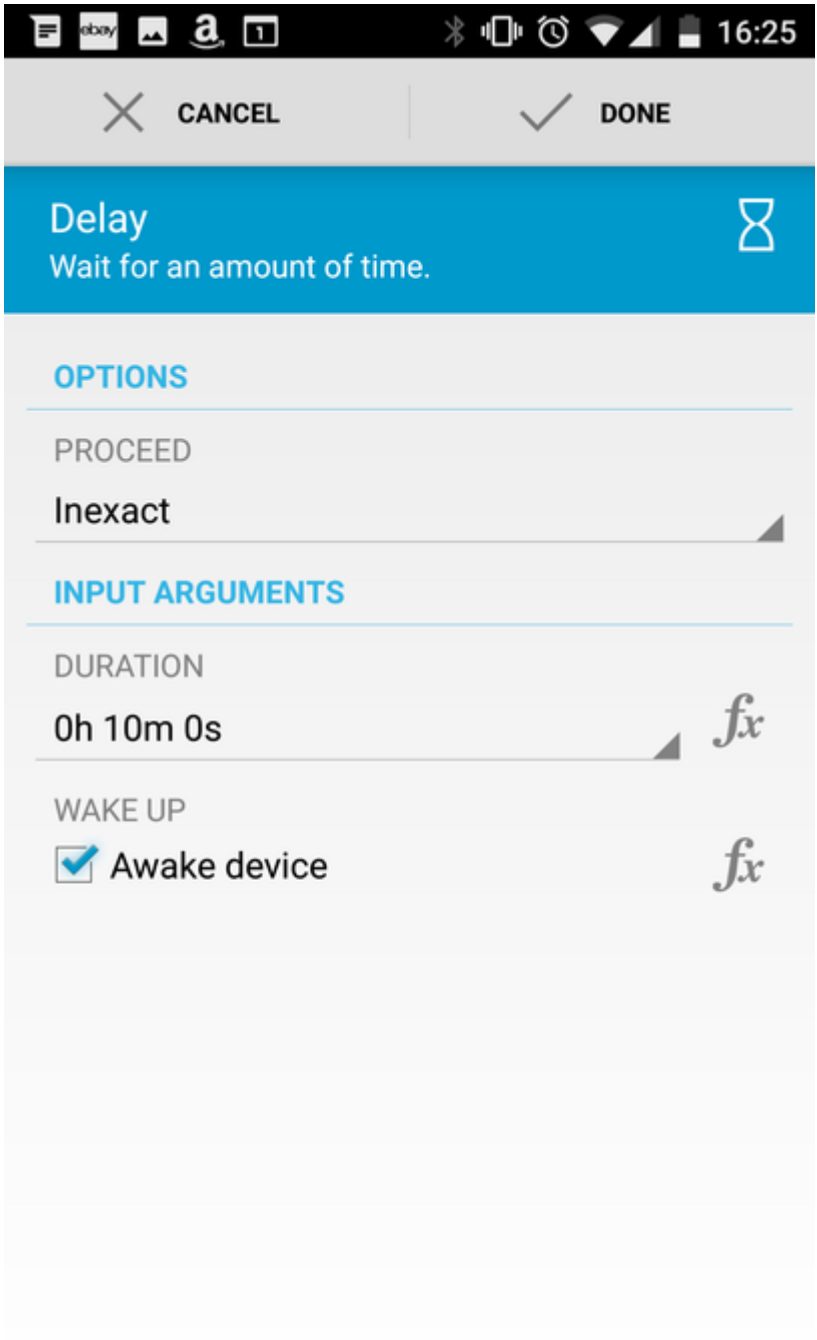
The configuration bits of a thread:



Ambient temperature sensor readings

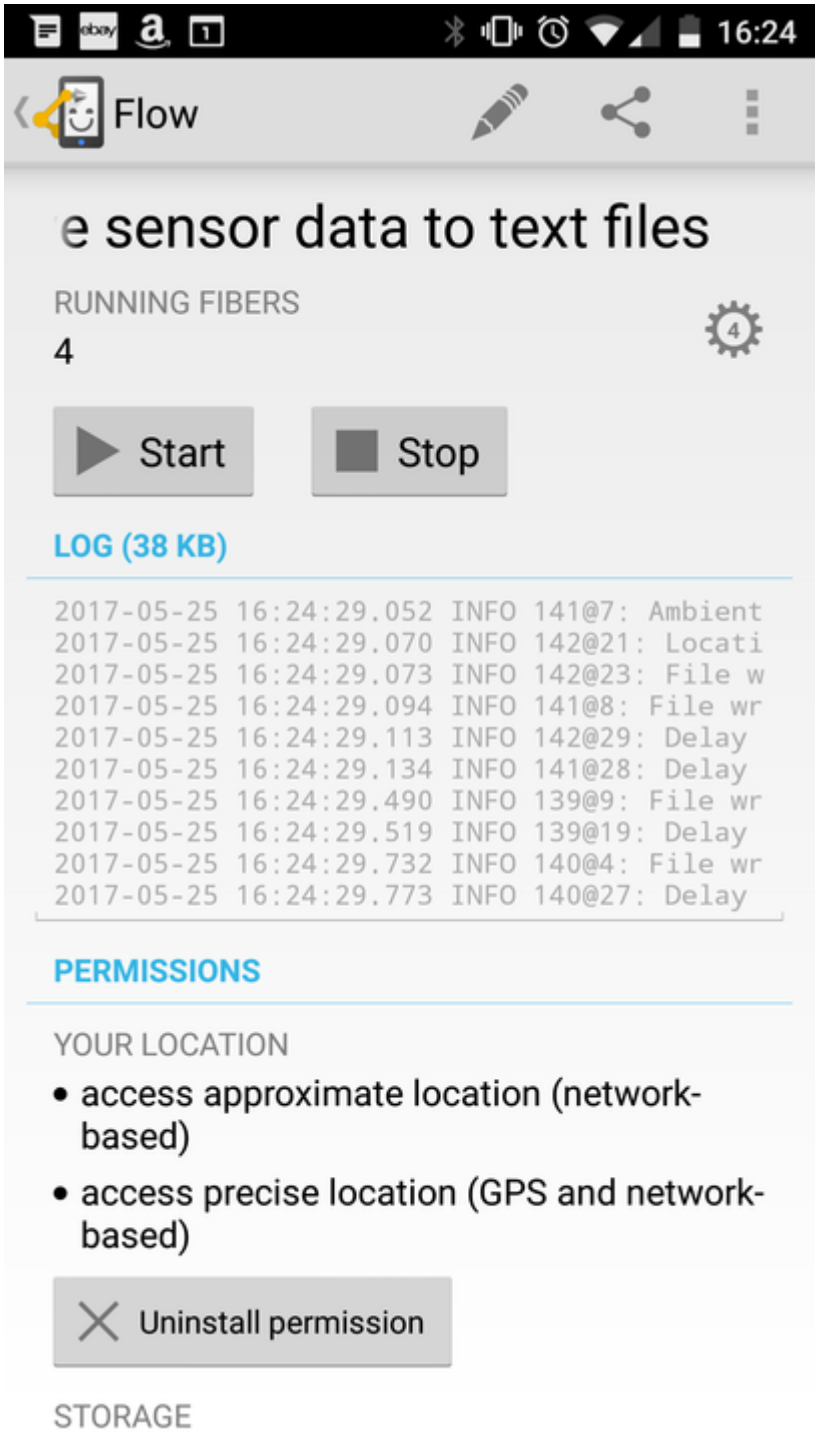

10:49
CANCEL
DONE
File write text
Write content to a text file.
INPUT ARGUMENTS
CONTENT
{Now;dateFormat;yyyy-MM-dd'T'hh:mm:ssXX} {AMBTEMP}
FILE
temperature.txt
ENCODING
UTF-8
APPEND
Append to file

file write


16:25
CANCEL
DONE
Delay
Wait for an amount of time.
OPTIONS
PROCEED
Inexact
INPUT ARGUMENTS
DURATION
0h 10m 0s
fx
WAKE UP
Awake device
fx

delay

Once it's fine, just press "Start":



Flow control panel

This could, of course, be extended with a custom URL call, which sends the sensor data to your server; or an MQTT push to a server and is pretty easy to configure.

Links

1. https://play.google.com/store/apps/details?id=com.llamalab.automate
2. https://www.google.co.uk/search?q=PLC+programming+flow&tbm=isch&tbs=imgo:1&gbv=1&sei=3RIoWer7CqWTgAbAhI-AAw
3. https://en.wikipedia.org/wiki/Pipeline_%28Unix%29

Created by Peter Molnar <mail@petermolnar.net>, published at 2017-05-26 19:10 UTC, last modified at 2021-05-11 11:49 UTC , to canonical URL https://petermolnar.net/article/android-logging-sensor-data-with-automate/ , licensed under CC-BY-4.0 .