

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]

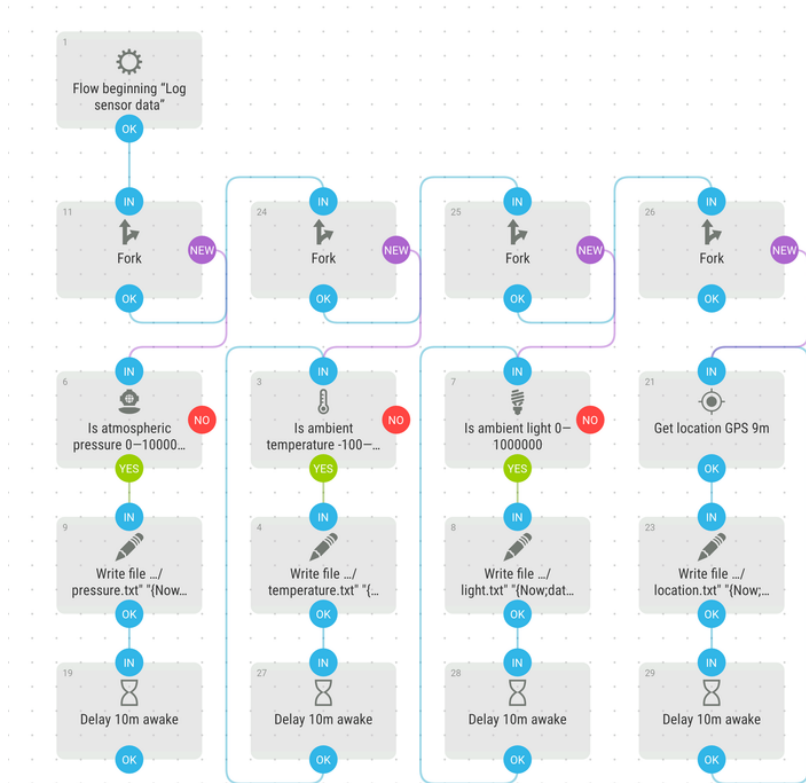
A long, long time ago I tried the ancestor of this app, when it was simply called llama. Since then it look like I come a long way, and now it resembles something I last saw when I learnt how to program PLCs^[2]

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:

✕ CANCEL

✓ DONE

Ambient temperature?



Check ambient temperature.

This feature consume 0.30mA, 0.00% of battery power during continuous use.

OPTIONS

PROCEED

Immediately

INPUT ARGUMENTS

MINIMUM TEMPERATURE

°C -100

fx

MAXIMUM TEMPERATURE

°C 100

fx

OUTPUT VARIABLES

AMBTEMP

CURRENT VALUES

TEMPERATURE

°C 34.76

CANCEL

DONE

File write text

Write content to a text file.



INPUT ARGUMENTS

CONTENT

{Now;dateFormat,yyyy-MM-dd'T'hh:mm:ssXX} {AMBTEMP}

fx

FILE

temperature.txt

fx

ENCODING

UTF-8

fx

APPEND

Append to file

fx

✕ CANCEL

✓ DONE

Delay



Wait for an amount of time.

OPTIONS

PROCEED

Inexact

INPUT ARGUMENTS

DURATION

0h 10m 0s

fx

WAKE UP

Awake device

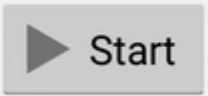
fx

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

Stream sensor data to text files

RUNNING FIBERS

4



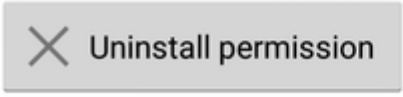
LOG (38 KB)

2017-05-25	16:24:29.052	INFO	141@7: Ambient
2017-05-25	16:24:29.070	INFO	142@21: Locati
2017-05-25	16:24:29.073	INFO	142@23: File w
2017-05-25	16:24:29.094	INFO	141@8: File wr
2017-05-25	16:24:29.113	INFO	142@29: Delay
2017-05-25	16:24:29.134	INFO	141@28: Delay
2017-05-25	16:24:29.490	INFO	139@9: File wr
2017-05-25	16:24:29.519	INFO	139@19: Delay
2017-05-25	16:24:29.732	INFO	140@4: File wr
2017-05-25	16:24:29.773	INFO	140@27: Delay

PERMISSIONS

YOUR LOCATION

- access approximate location (network-based)
- access precise location (GPS and network-based)



STORAGE

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.Ilamalab.automate>
2. <https://www.google.co.uk/search?q=PLC+programming+flow&tbm=isch&tbs=imgo:1&gbv=1&sei=3RIoWer7CqWTgAbAhl-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 .