Sonoff Mobile Presence

Contents

Introduction

Once you have all the resources, Sonoff switch, FTDI programmer and the various software tools everything else is here to complete this project in a weekend. I advise you read it all through and order the various parts and pre-download everything you thing you are going to need.

As a guide I would expect this project to cost <£50 assuming you already the SmartThings infrastructure set up.

You should have some familiarity with MAC addressing and Static IP in order to set you mobile devices and home router up correctly, I do not cover the details of this here but it's not difficult.

All things Firmware

The instructions for building your Sonoff device are widely covered, here: https://smartlife.tech/blog/2016/04/21/sonoff-wifi-switch-smartthings/ and here: https://community.smartthings.com/t/release-sonoff-sonoff-th-s20-dual-4ch-pow-touch-device-handler-smartapp-5-10-smart-switches/45957

The firmware you need is here: https://github.com/bench745/Sonoff-SmartThings-Compatible-Firmware

The files are:

- sonoffSwitchxPresenceSense.ino – is the source code written in Arduino C
- sonoffSwitchxPresenceSense.ino.esp8285.bin – is the binary image to be loaded onto the ESP
- Readme.md - useful guide on how to use your new sonoff device

This code is for the Sonoff basic r2.

The code is written for the Arduino development environment, available from the windows store. To compile you must install the sp8266 family of boards.

A good tutorial for this can be found at https://randomnerdtutorials.com/how-to-install-esp8266-board-arduino-ide/

The code has a number of dependencies; WiFiManager, ESP8266Ping (https://github.com/dancol90/ESP8266Ping), ESP866HTTPClient (all available in manage libraries) and the ESP8266 board definition

The sketch should be compiled with the board definition:

Generic ESP8285 Module, 80 MHz, Flash, Enabled, ck, 26 MHz, 1M (no SPIFFS), 2, V2 Lower Memory, Disabled, None, Only Sketch, 115200 on COM%number%

All things Groovy

Sonoff-connect a Service Manager for Sonoff switches (smart app) originally produced by erom123 and updated to support the 'Sonoff Wifi Switch and Presence Sensor' device handler:

https://github.com/LeeC77/SmartThingsPublic/blob/master/smartapps/leec77/sonoff-connect.src/sonoff-connect.groovy

You will need to use this updated Smart App to install the device handler below. Follow this thread

https://community.smartthings.com/t/release-sonoff-sonoff-th-s20-dual-4ch-pow-touch-device-handler-smartapp-5-10-smart-switches/45957

Sonoff Wifi Switch and Presence Sensor (device handler):

https://github.com/LeeC77/SmartThingsPublic/tree/master/devicetypes/leec77/sonoff-wifi-switch-and-presence-sensor.src

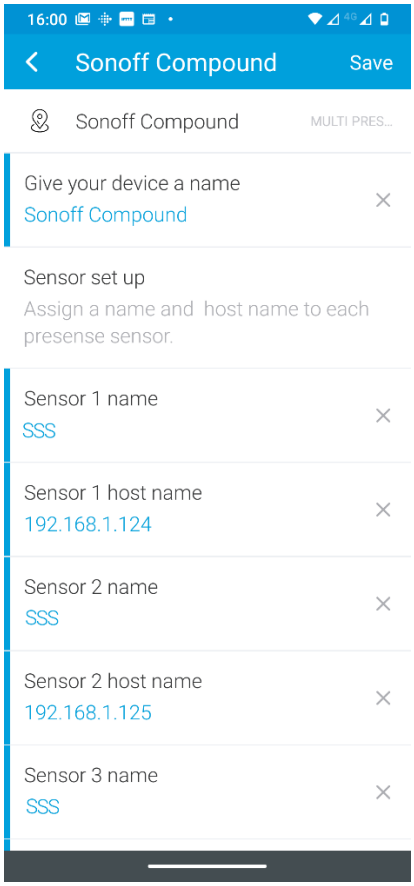
How to set up

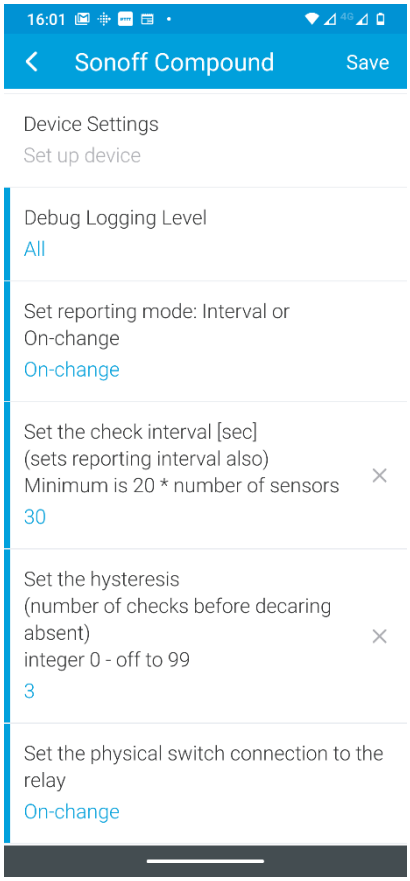
All uses most have a mobile phone to act as the presence device.

The Mac address randomisation must be turned off for home Wi-Fi(s)

The phone must be allocated a static IP (this needs to be known to the device handler)

There are 10 pairs of fields for setting up the identities of the sensor, name should be for example the name of the person who's presence is given by the connection of mobile device with the host name you also spec. In the example below on the first three names and two host names (static IP address) are visible.





! Remember the order you allocated the names to the sensors you will need this in the smart App

The Sonoff device also brings out the original sensors and actuators of the original device these can be set up in addition to the new features at the bottom of the settings page. An example is shown above.

Debug Logging Level allows the levelof debug reported to the SmartThings IDE to be controlled.

Set reporting mode: Interval or On-change selects how often the Sonoff sends presence sensor information to the device handler. Interval time is set by Set **check interval**. On change only reports when a change connected or not connected is sensed.

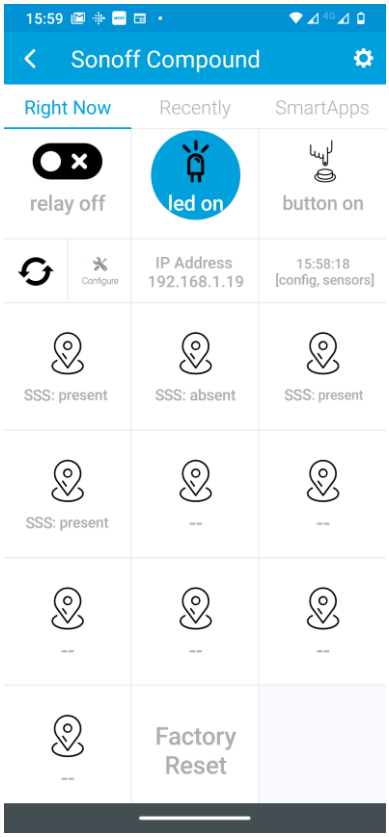
Set check interval. The ESP 8285 is only able to conduct one task at a time and the ping mechanism used to detect change in connection status can take a few seconds to complete, so it is advisable to not be too aggressive with the reporting interval time as this will interfere with the device response to other inputs for example the switch change. 60 t0 80 seconds gives a reasonable response to detect the presence on four mobile devices. Bu all mean try it out and if you don't care about the switch function 30 seconds is a reasonable compromise for 4 mobile presence.

Set the hysteresis As occasionally mobile devices will drop their Wi-Fi connection, this control is provided to count a number intervals of disconnections before reporting. This is overridden by setting **Set reporting mode** to interval.

Set the physical switch connection to the relay This setting simply disconnects or connects button on the Sonoff device to operate the relay (On-change) or not (Disconnected). Not this is a software connection the relay can sometimes lag the button see **Set check interval.**

From the device tiles the following functions can be performed, see the diagram below.

- The Relay can be switched on or off.
- The led can be set on, off, follow the relay state or be in the opposite state to the relay.
- There is an indicator to catch the button press and provide an event in SmartThings
- There is refresh button that refreshes all the sensor settings and checks if the configuration is in sync with the device handler (an orange dot appears on the config tile if not).
- The configure button syncs the device with the device handler.
- The IP address of the Sonoff device is displayed.
- There is an information tile with the last received packet and time.
- Then there are ten tiles giving the status of the mobile devices set up above.
- Finally a factory rest button that puts the Sonoff back to its first boot condition i.e. a Wi-Fi AP.



Presence Coordinator Sonoff (smart app):

https://github.com/LeeC77/SmartThingsPublic/blob/master/smartapps/leec77/presense-coordinator-sonoff.src/presense-coordinator-sonoff.groovy

For set up it is assumed yourare familiar with virtual **Forcible Mobile Presence** sensors, if not search it in the SmartThings Community Forum and see:
https://github.com/krlaframboise/SmartThings/tree/master/devicetypes/krlaframboise/forcible-mobile-presence.src

To set up the smart App you just need to identify the **Sonoff Wifi Switch and Presence Sensor** and the individual virtual **Forcible Mobile Presence** in the same order you noted above in the smart App settings.