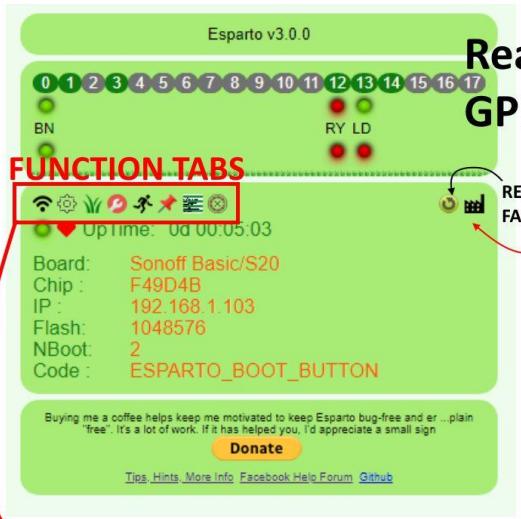
From beginner through to Master: how to develop “bombproof” ESP8266 IOT apps in minutes using the Esparto rapid application development framework

Esparto v3.0

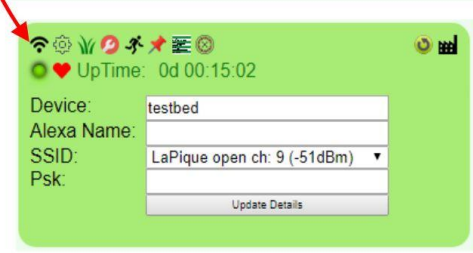
ESP8266 web UI cheat sheet

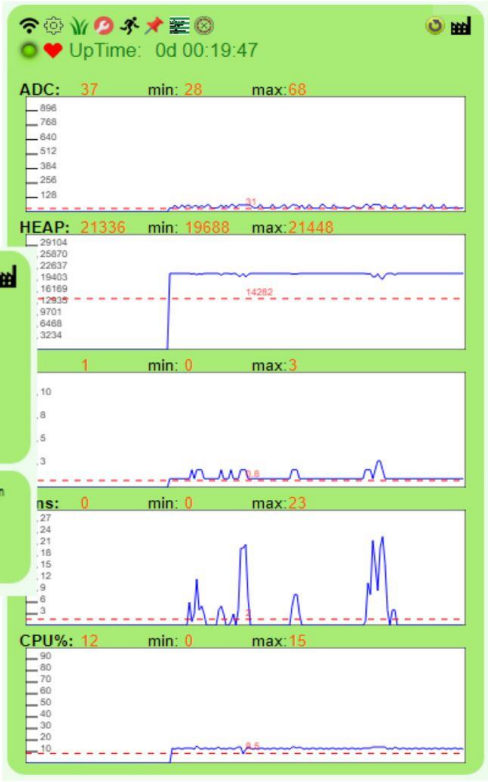
Esparto v3.0 Feature Preview

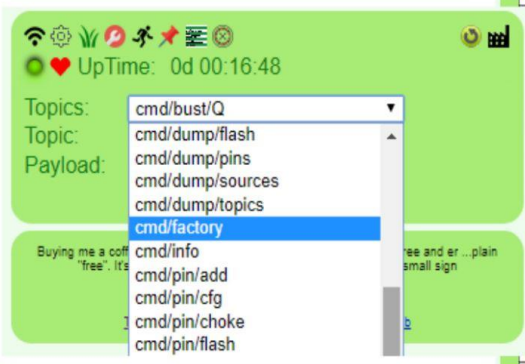


Dynamically add GPIO

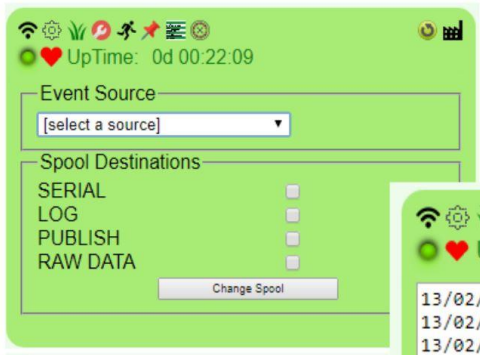
Runs on:
Wemos D1/mini/pro
NodeMCU
ESP-01/S
SONOFF Basic/S20/SV
...pretty much anything with ESP8266 in it!

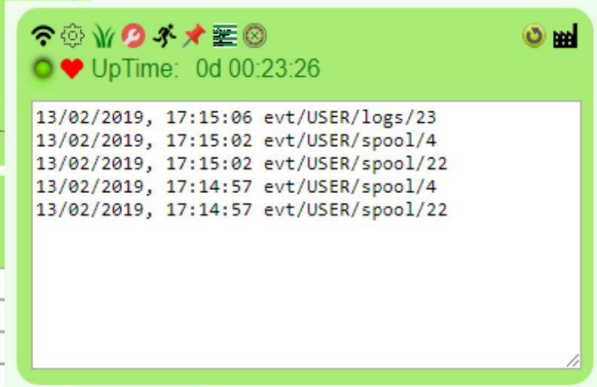






DEVICE SWITCHED BY:
* **Physical button**
* **Web UI**
* **Web REST command**
* **Remote MQTT**
* **MQTT simulator**
* **Echo Voice (ALEXA)**





Other Features:
* **HW functions 24/7**
* **Auto fail recovery**
* **No reboots**
* **Easy API**
* **40+ code samples**

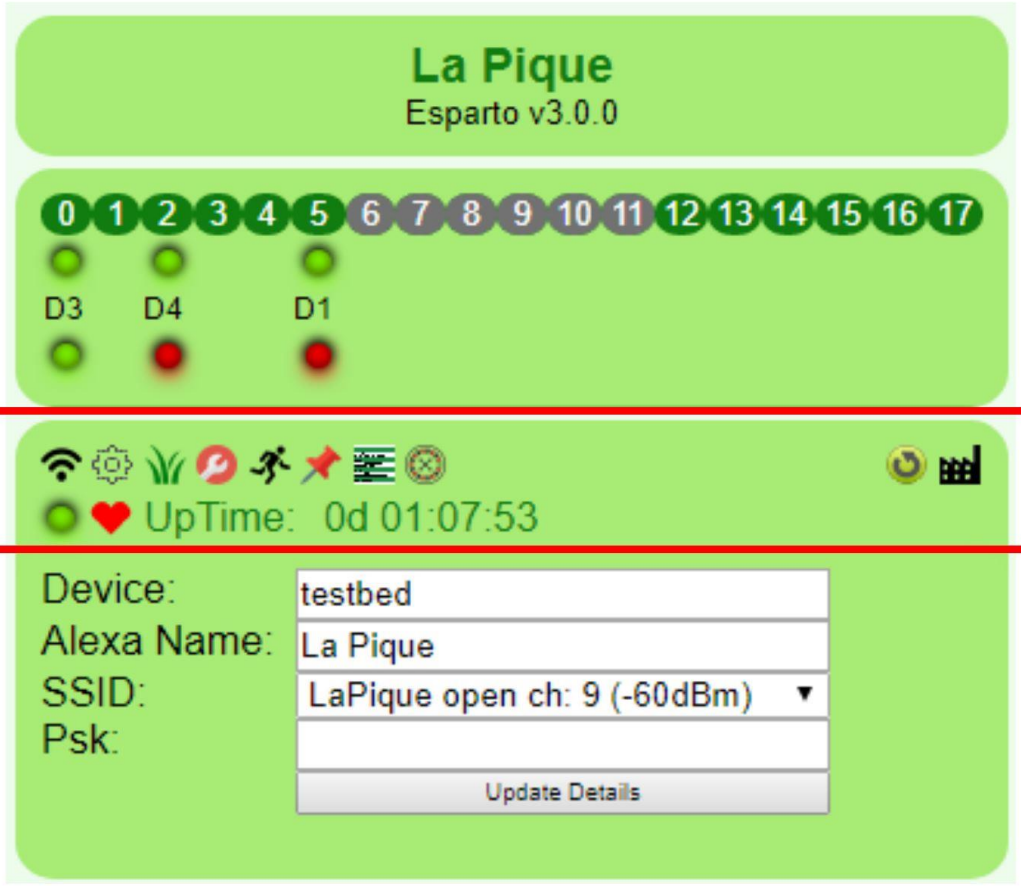
Plus (of course!) OTA

BareMinimum_SONOFF_BASIC

```
#include <ESPArto.h>
ESPArto Esparto("LaPique","","testbed","192.168.1.4",1883);
void setupHardware(){
  Esparto.Output(BUILTIN_LED,LOW,HIGH);
  Esparto.DefaultOutput(RELAY,HIGH,LOW,[](int v1, int v2){Esparto.digitalWrite(BUILTIN_LED,!v1); });
  Esparto.std3StageButton();
}
```

All of this from 7 lines of code!

 philbowles2012@gmail.com https://github.com/philbowles/esparto



GPIO PANEL

TABS PANEL (showing WiFi)

Common Controls

Each icon opens a new lower tab

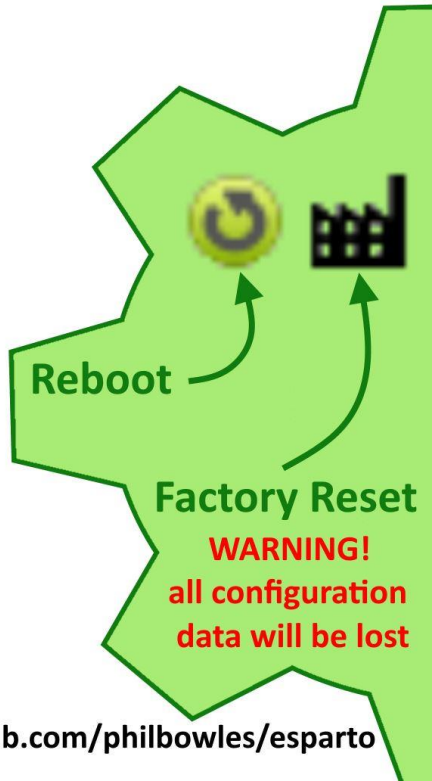
WiFi CPU Info Config Run Pins Log Spool

Health

MQTT Heartbeat 1x per second

UI Throttled

(GPIO activity too fast to show in realtime)



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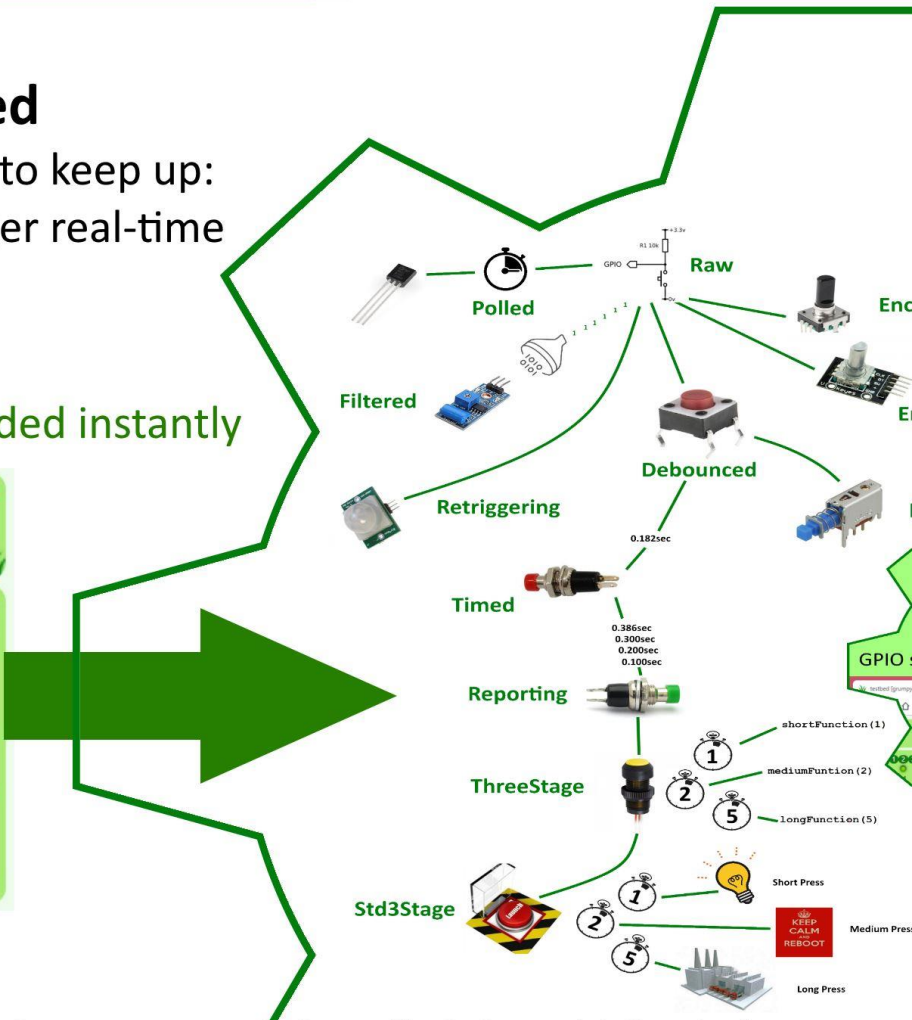
GPIO5 is Throttled

Pin is changing too fast for UI to keep up:
State is indicative and no longer real-time

New GPIO types may be added instantly using the pins tab



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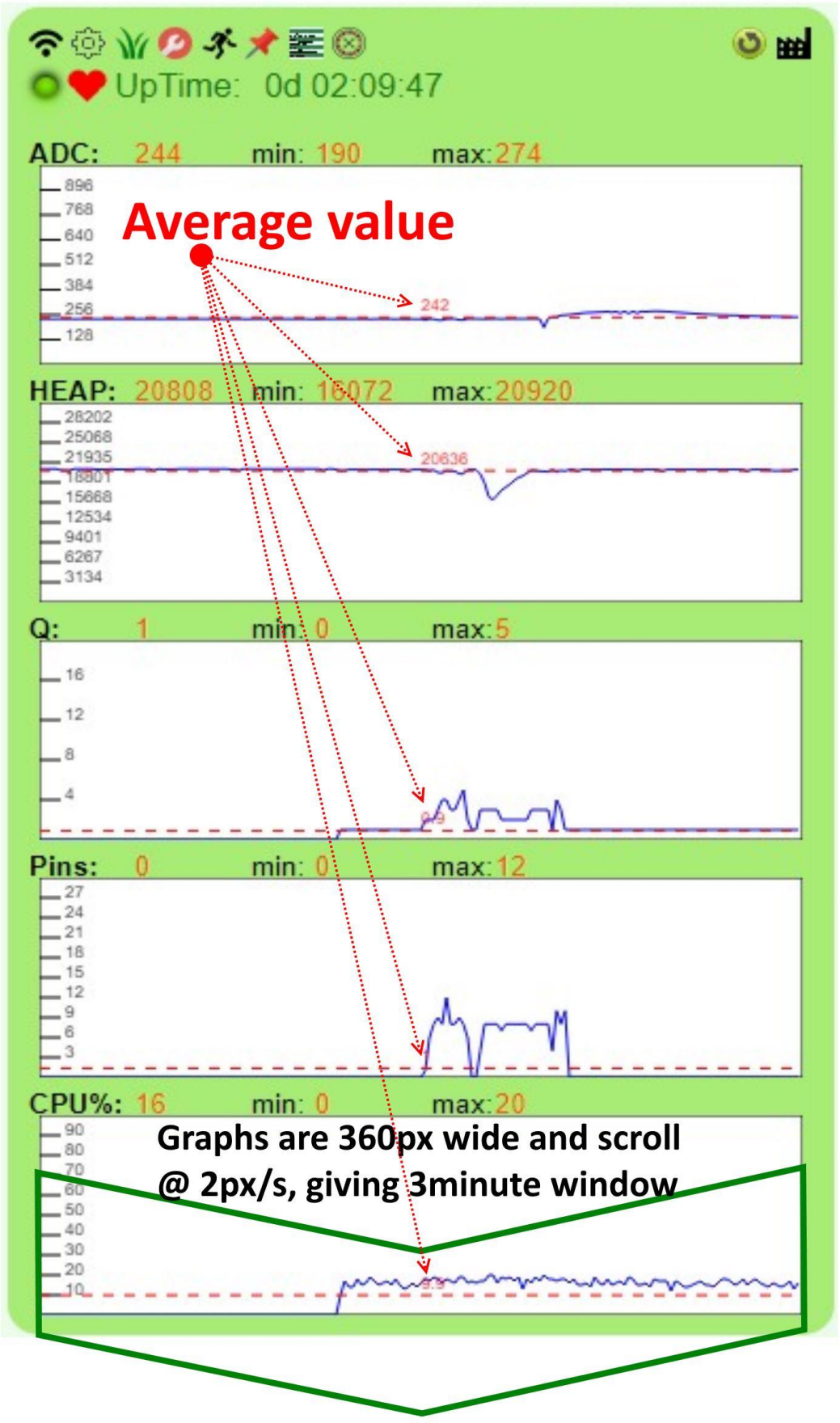

analogRead Value

Free Heap

Task Queue Length

GPIO changes per second

CPU load percentage

Number of reboots

```
102
103  Esparto.reboot();
104  // OR...
105  Esparto.invokeCmd("cmd/reboot");
106
```

ESPARTO_BOOT_USERCODE
ESPARTO_BOOT_UI
ESPARTO_BOOT_MQTT
ESPARTO_BOOT_BUTTON
ESPARTO_FACTORY_RESET
ESPARTO_BOOT_UNCONTROLLED

An unexpected increase in NBoots means your MCU has rebooted without it being commanded to do so.

This may be the first sign that there is a problem with your code

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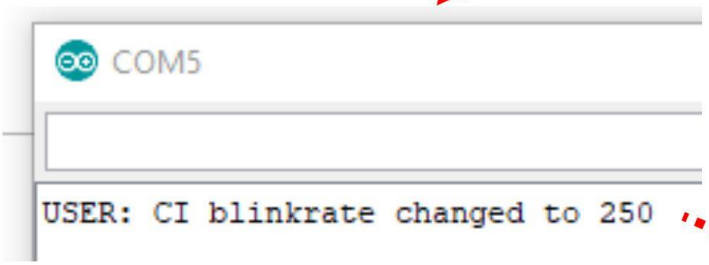
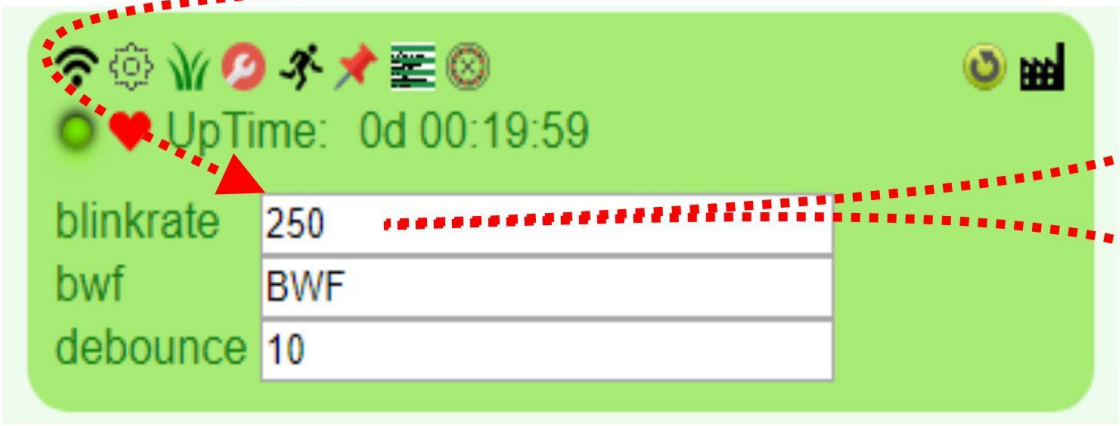
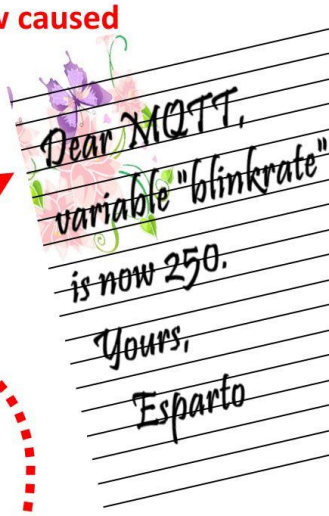
```
ESPARTO_CFG_MAP defaults={
    {"blinkrate","125"},
    {"bwf","BWF"}
    {"debounce","10"},
};
ESPARTO_CFG_MAP& addConfig(){
  return defaults;
}
```

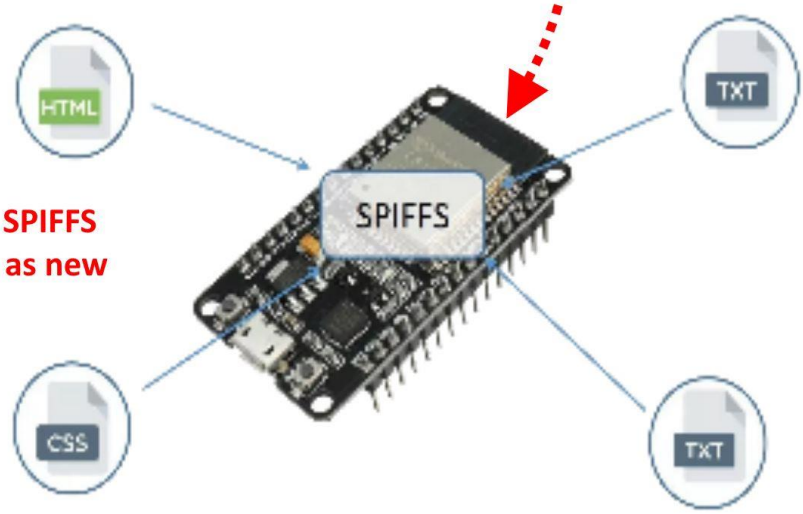
Changes notified to user code automatically



UI updated dynamically to reflect any changes, no matter how caused







Changes automatically saved to SPIFFS and will re-appear on next boot as new value

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3 Click!

No MQTT broker is needed: all of Esparto's cmds can run here

BUILT-IN

- cmd/config/get
- cmd/config/set
- cmd/factory
- cmd/info
- cmd/pin/add
- cmd/pin/cfg
- cmd/pin/choke
- cmd/pin/flash
- cmd/pin/get
- cmd/pin/kill
- cmd/pin/pattern
- cmd/pin/pwm
- cmd/pin/set
- cmd/pin/stop
- cmd/reboot
- cmd/rename
- cmd/spool

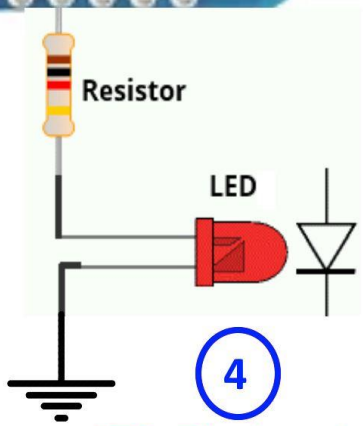
2 Add some data

Select a topic

1

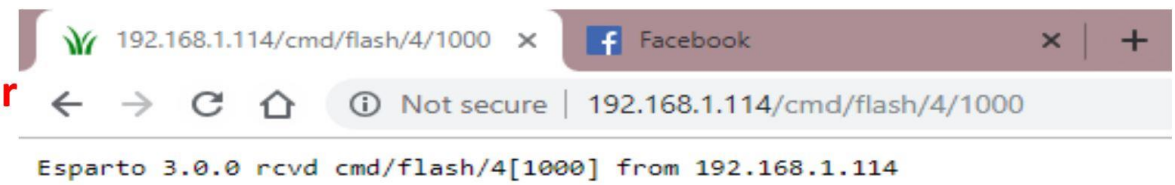
switch User-defined

```
void onMqttConnect(){
  Esparto.subscribe("switch",mySwitchFunction);
}
```



4 LED Flashes 1x per second

5 OR, just type it directly into your browser



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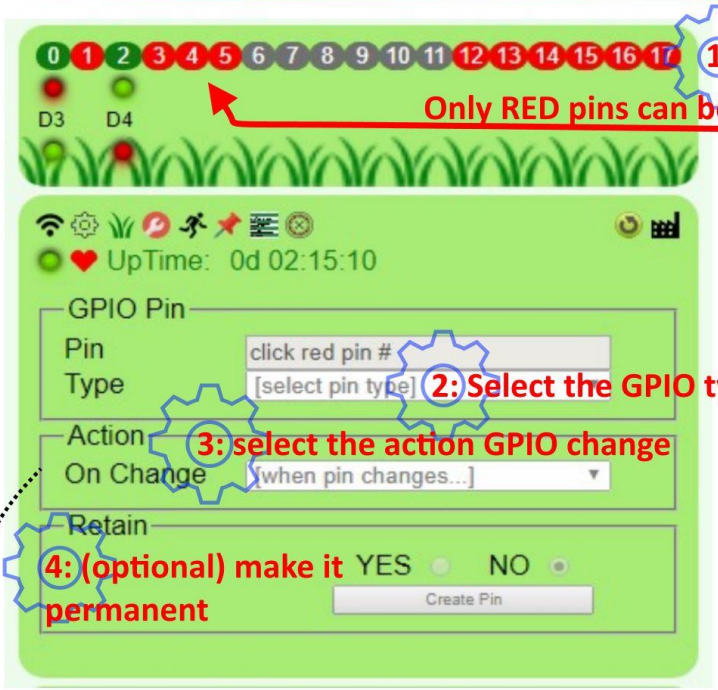
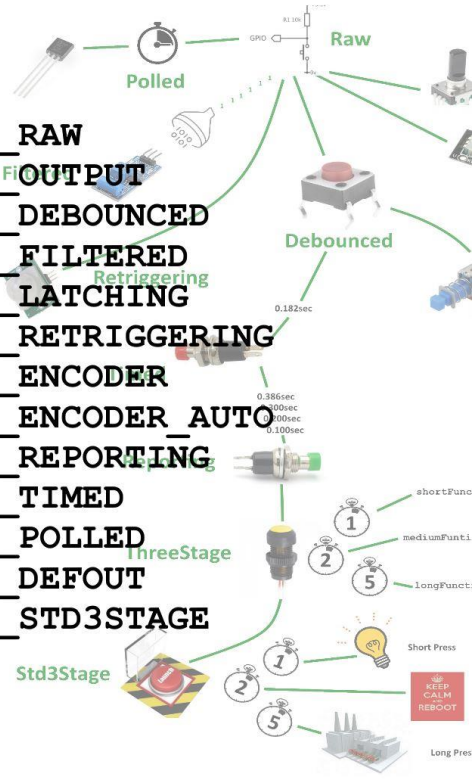
Esparto v3.0 Web User Interface: Pins Tab




```
ESPARTO_STYLE_RAW
ESPARTO_STYLE_OUTPUT
ESPARTO_STYLE_DEBOUNCED
ESPARTO_STYLE_FILTERED
ESPARTO_STYLE_LATCHING
ESPARTO_STYLE_RETRIGGERING
ESPARTO_STYLE_ENCODER
ESPARTO_STYLE_ENCODER_AUTO
ESPARTO_STYLE_REPORTING
ESPARTO_STYLE_TIMED
ESPARTO_STYLE_POLLED
ESPARTO_STYLE_DEFOUT
ESPARTO_STYLE_STD3STAGE
```



If you don't like programming, this is for you!

```
<option value= "0">[when pin changes...]</option>
<option value= "1">No Action</option>
<option value= "3">Output Passthru</option>
<option value= "2">Publish Pin Value</option>
<option value= "9">Publish Var Value</option>
<option value= "4">Set Var (Pin)</option>
<option value= "5">Set Var (Param)</option>
<option value= "6">Dec Var</option>
<option value= "7">Inc Var</option>
<option value= "10">Add to Var</option>
<option value= "11">Sub from Var</option>
<option value= "8">Command</option>
<option value= "12">Flash LED</option>
<option value= "13">Flash LED PWM</option>
<option value= "14">Flash LED Pattern</option>
<option value= "15">Stop LED Flash</option>
```

Send state to an output pin
Send pin value to MQTT
Send value of variable to MQTT
Set variable to value of pin
Set variable to arbitrary value
Decrement a variable
Increment a variable
Add pin value to a variable
Subtract pin value from a variable
Run any command + payload

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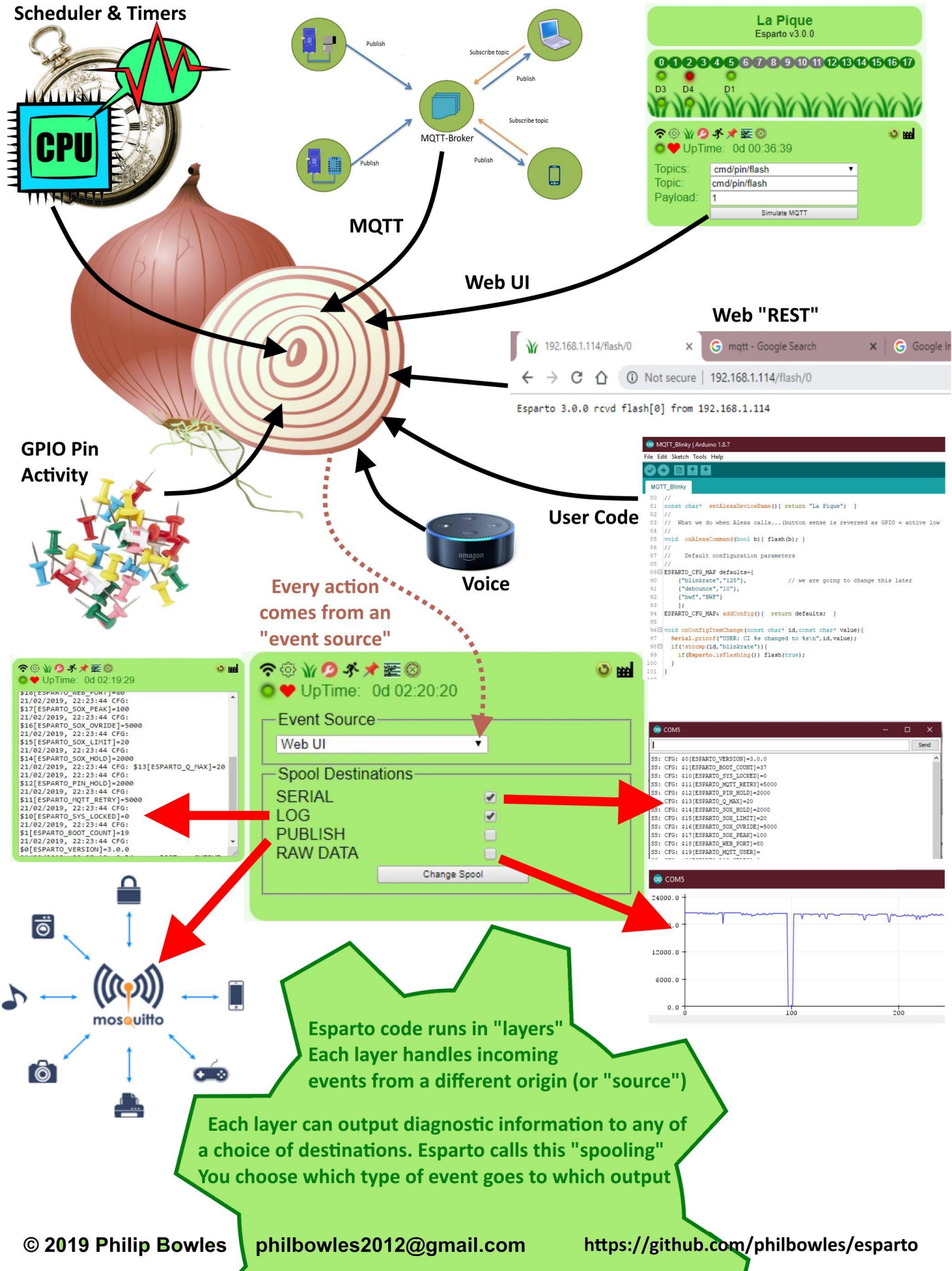
Esparto v3.0 — Web User Interface: Spool and Log Tabs



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