Enabling Migration from Tasmota to Lilota for ESP32 and ESP8266 devices

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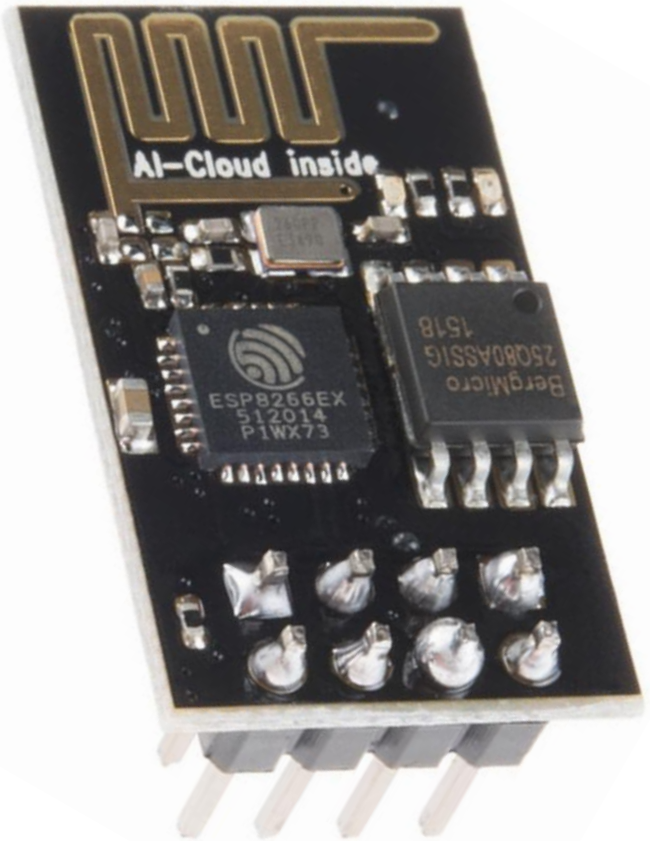
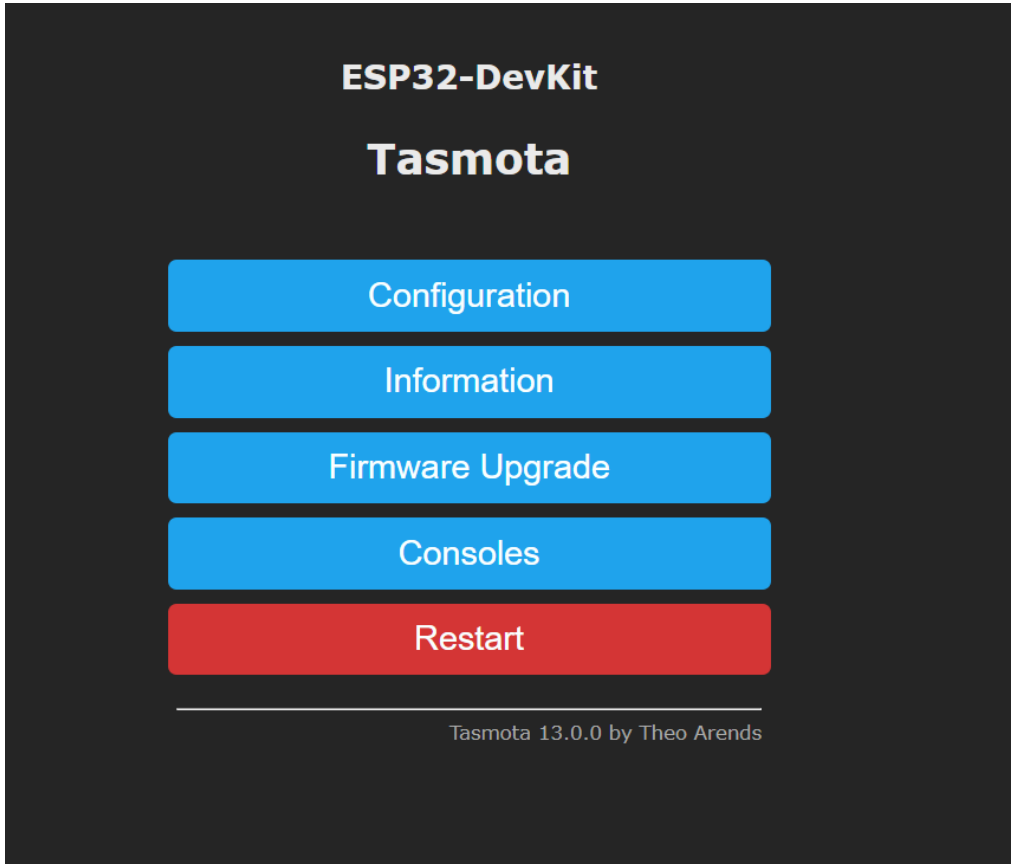
ESP32 & ESP8266



Tasmota

- Open-source firmware for ESP32 and ESP8266 devices
- Allows control via MQTT, Web UI, HTTP, or serial monitor
- Tasmota Templates



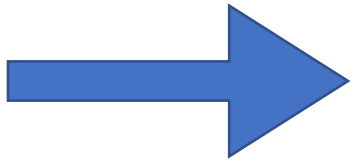
Going from Tasmota to Lilota

- Lilota – Little Interpreted Language Over The Air
- Goal: make it easy to go from Tamsota to Lilota

Template Translation

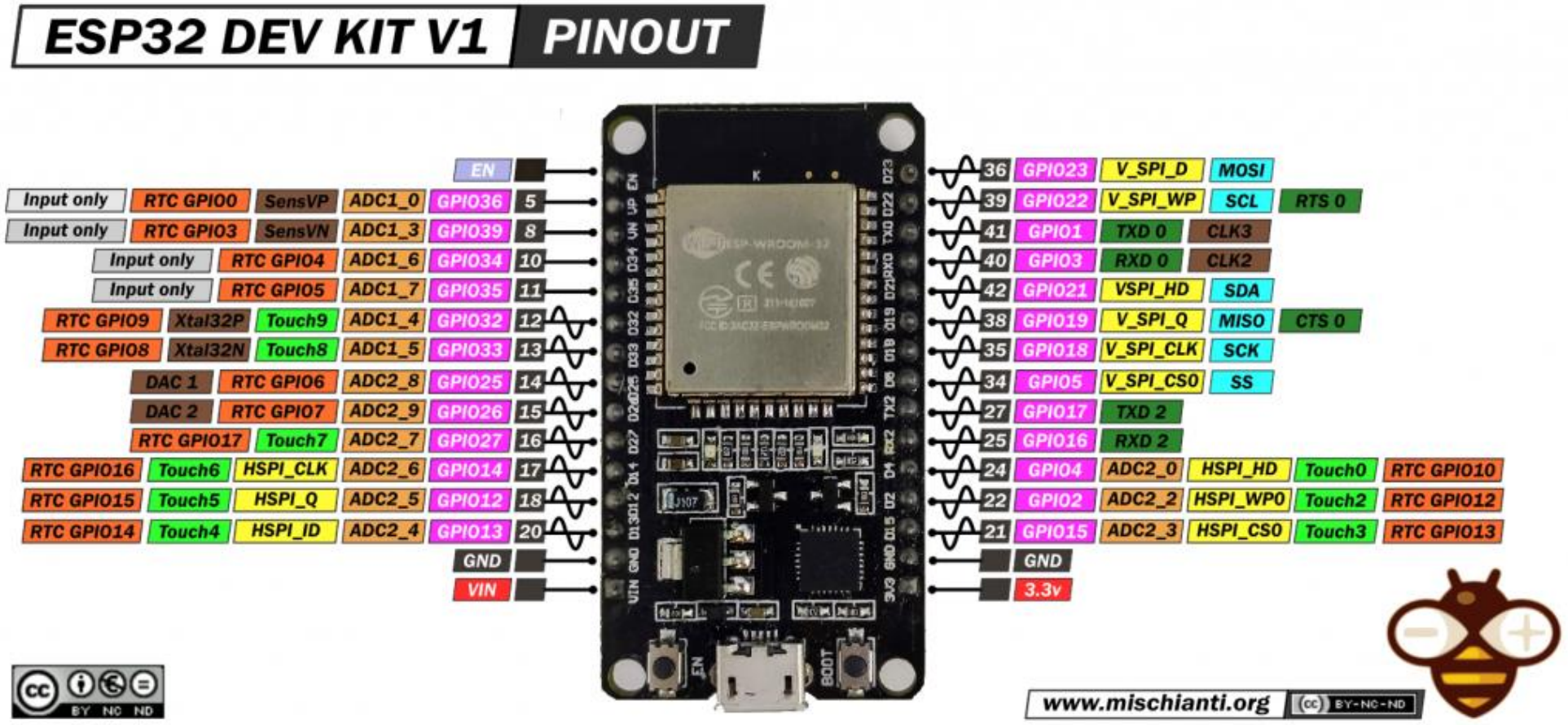
{"NAME":"Example Template","GPIO":[34, 35, 64, 65, 97, 98, 130, 131, 162, 163, 194, 195, 224, 225, 257, 258, 290, 291, 320, 321], "FLAG":0, "BASE":45}

37	Button6	Button active low, internal pull-up resistor
38	Button7	Button active low, internal pull-up resistor
39	Button8	Button active low, internal pull-up resistor
64	Button_n1	Button active low, no internal pull-up resistor
65	Button_n2	Button active low, no internal pull-up resistor



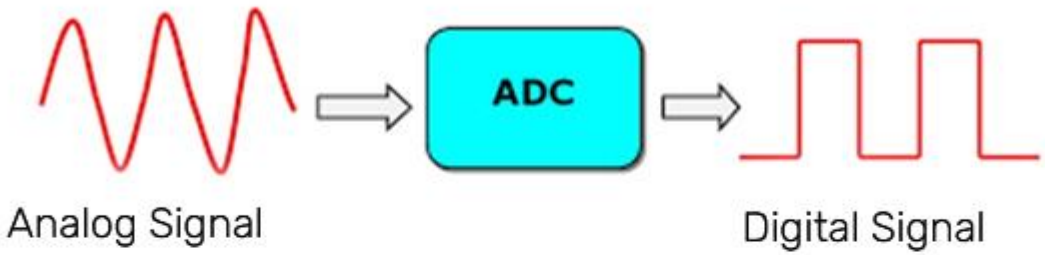
```
set button3 [gpio 1 in pullup]
set button4 [gpio 2 in pullup]
set button_n1 [gpio 3 in none]
set button_n2 [gpio 4 in none]
set button_i2 [gpio 5 in pullup y]
set button_i3 [gpio 6 in pullup y]
set button_i3 [gpio 7 in none y]
set button_i4 [gpio 8 in none y]
set switch3 [gpio 9 in pullup]
set switch4 [gpio 10 in pullup]
set switch_n3 [gpio 11 in none]
set switch_n4 [gpio 12 in none]
set relay1 [gpio 13 in none]
set relay2 [gpio 14 in none]
```

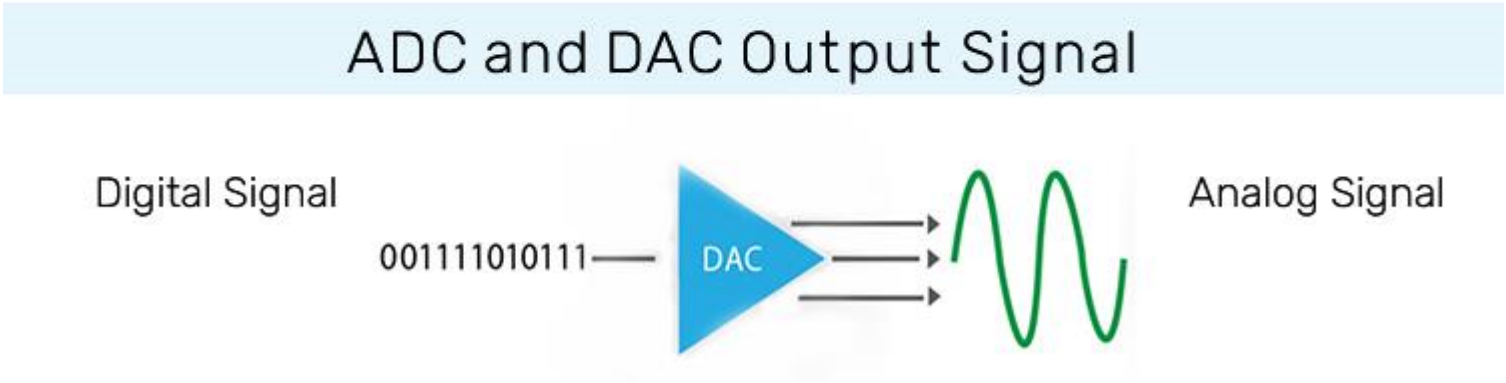
GPIOs


ESP32 DEV KIT V1 PINOUT
EN
Input only RTC GPIO0 SensVP ADC1_0 GPIO36 5
Input only RTC GPIO3 SensVN ADC1_3 GPIO39 8
Input only RTC GPIO4 ADC1_6 GPIO34 10
Input only RTC GPIO5 ADC1_7 GPIO35 11
RTC GPIO9 Xtal32P Touch9 ADC1_4 GPIO32 12
RTC GPIO8 Xtal32N Touch8 ADC1_5 GPIO33 13
DAC 1 RTC GPIO6 ADC2_8 GPIO25 14
DAC 2 RTC GPIO7 ADC2_9 GPIO26 15
RTC GPIO17 Touch7 ADC2_7 GPIO27 16
RTC GPIO16 Touch6 HSPI_CLK ADC2_6 GPIO14 17
RTC GPIO15 Touch5 HSPI_Q ADC2_5 GPIO12 18
RTC GPIO14 Touch4 HSPI_ID ADC2_4 GPIO13 20
GND
VIN
36 GPIO23 V_SPI_D MOSI
39 GPIO22 V_SPI_WP SCL RTS 0
41 GPIO1 TXD 0 CLK3
40 GPIO3 RXD 0 CLK2
42 GPIO21 VSPI_HD SDA
38 GPIO19 V_SPI_Q MISO CTS 0
35 GPIO18 V_SPI_CLK SCK
34 GPIO5 V_SPI_CS0 SS
27 GPIO17 TXD 2
25 GPIO16 RXD 2
24 GPIO4 ADC2_0 HSPI_HD Touch0 RTC GPIO10
22 GPIO2 ADC2_2 HSPI_WP0 Touch2 RTC GPIO12
21 GPIO15 ADC2_3 HSPI_CS0 Touch3 RTC GPIO13
GND
3.3v
EN
BOOT
www.mischianti.org
BY-NC-ND

ADC/DAC

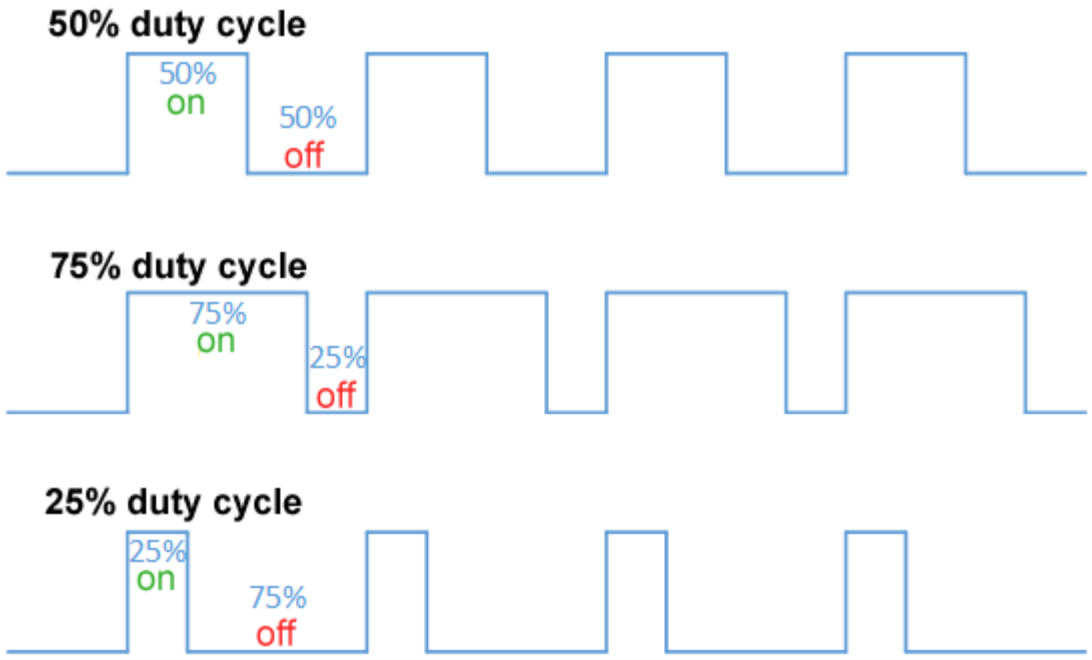
- ADC (Analog to Digital Convertor) and DAC (Digital to Analog Convertor) are devices that can take in and output specific voltages.





PWM

- Method of using a digital signal

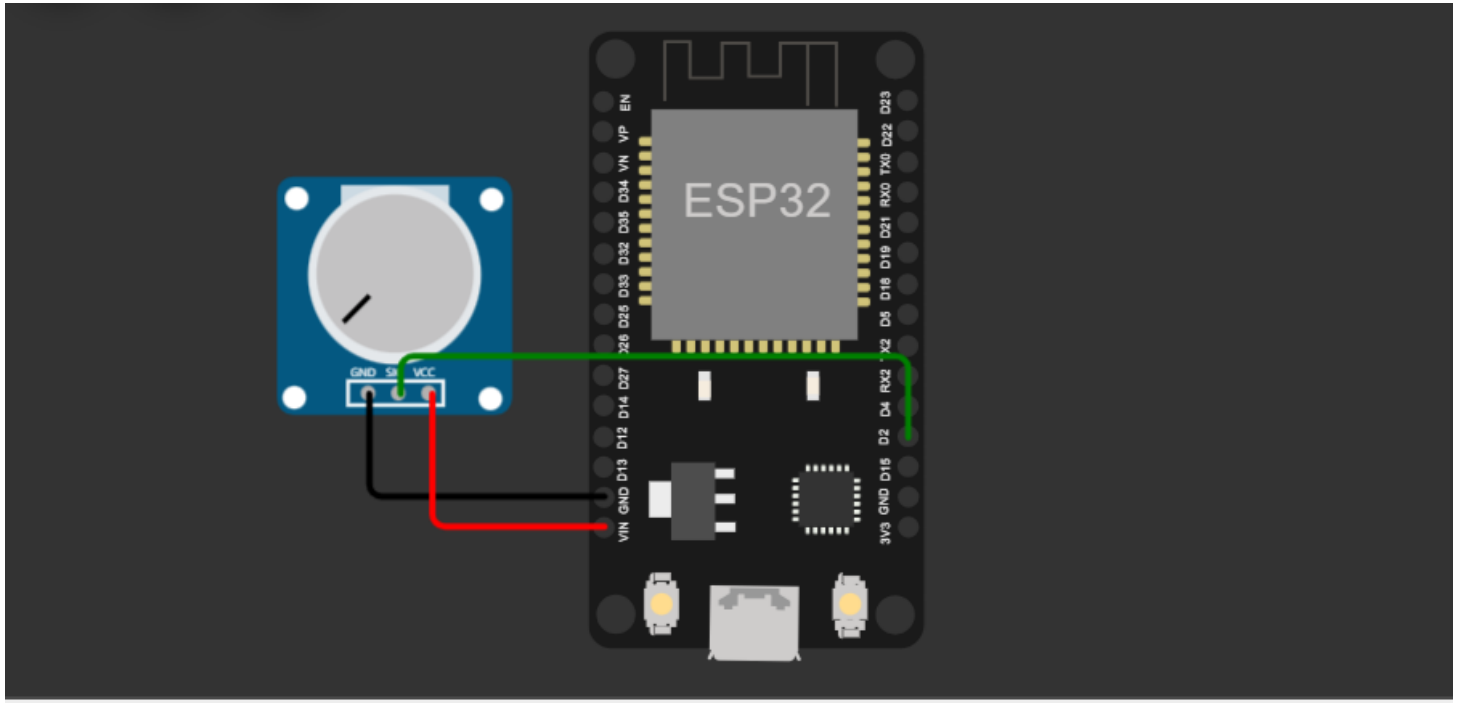


Results

Lil Commands:

- GPIO
  - gpio [port] [in\out] [pullup\pulldown\none] [inverted] (optional)
  - gpio get
  - gpio on
  - gpio off
- ADC/DAC
  - analog [channel] [adc/dac]
  - analog get
  - analog out
- PWM
  - pwm [gpio pin] [speed mode] [sig frequency] [duty resolution] [initial duty](optional)
  - pwm set [duty]
  - pwm update
  - pwm get

Example



set ADC_potentiometer [analog ADC1_0 in]
$ADC_potentiometer get

```
[0;32mI (4968) LIL WRAPPER: set analog pin in[0m
[0;32mI (4988) LIL WRAPPER: pin level: 1.750381[0m
```

Setting and reading from a potentiometer on an online simulation of the ESP32

Conclusion

- Tasmota users will now have the option to migrate to using Lilota.
- Next Steps:
  - Adding more specific components to the Template Translator
  - Implementation of more I/O devices and more LIL commands for these I/O.