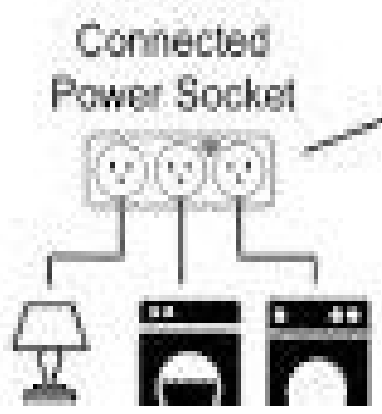




**An IoT device**



**CONTROL?  
REPORT?**



**YOU – at your PC or your phone**

# So what project are you making?

Things we might use:

Sonar ranger

OLED display

Relay



# Oled screen on LG2

*optional*

Supported on LG2 logging suite  
Automatically detected.  
Connect pins either

**SDA → D1**

**SCL → D2**

Or (for ESP-01)

SDA → D3 (GPIO00)

SCL → D4 (GPIO02)

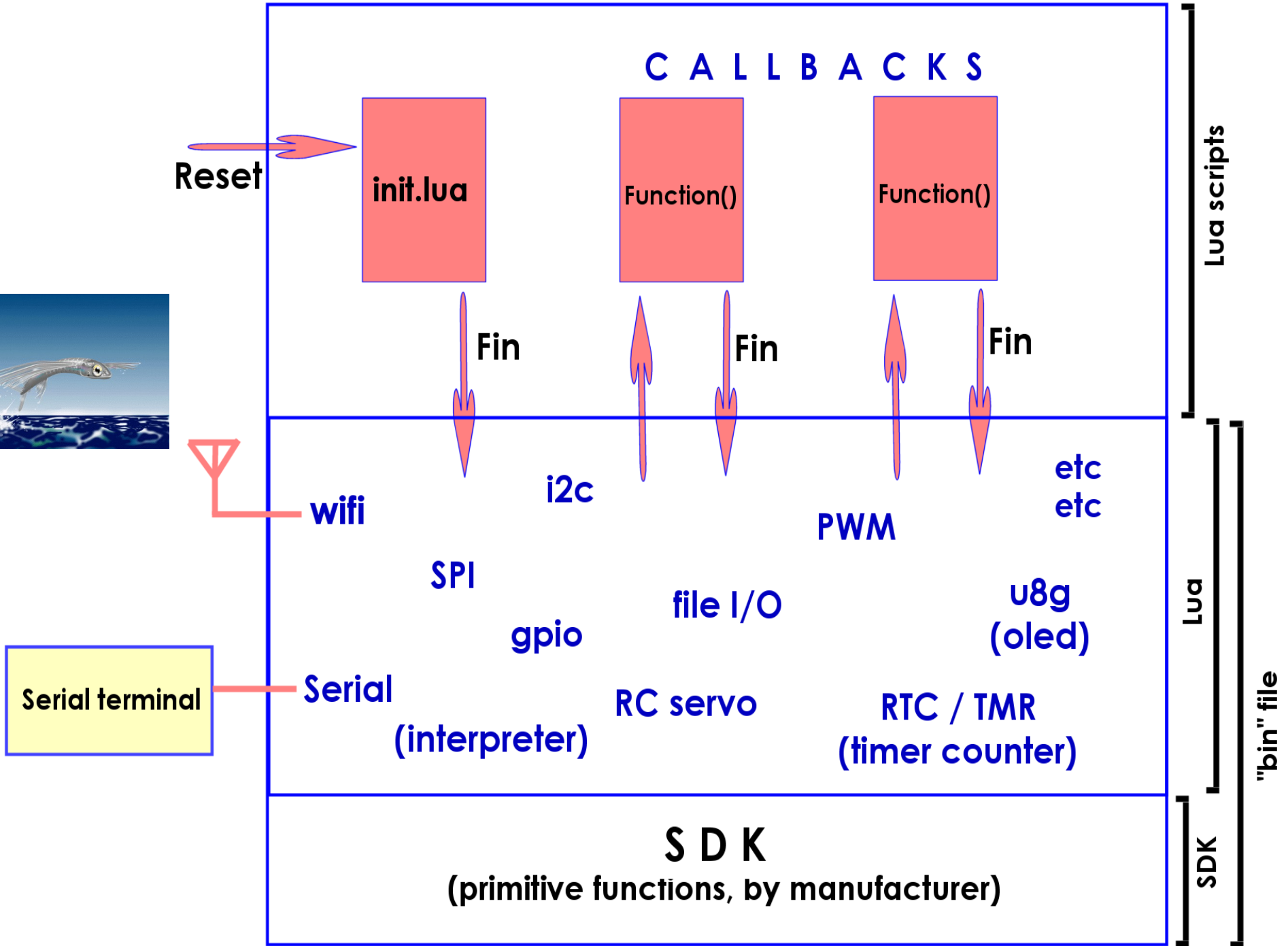


You need a lua BIN file that supports the OLED.

Re-flash with this one:

**nodemcu-dev-2016-04-10-flt.bin**

*Note: it uses 115200 baud*



# Our “project” script

## 1. action() function

Did browser person press a button tthat we need to “service”?

Eg turn on/off a GPIO pin.

## 2. buildpage() function

Construct the visible items/buttons on user's web page

## 3. Any GPIO setup needed?

Eg any pins to be initialised to OUTPUT?

## 4. The real “works” of our customised project

Eg tracking & logging of button presses, PIR etc?

Regular status logging?

Messages to oled?

# Sonar



Short + pulse to TRIG pin

Measure duration of + pulse on ECHO pin

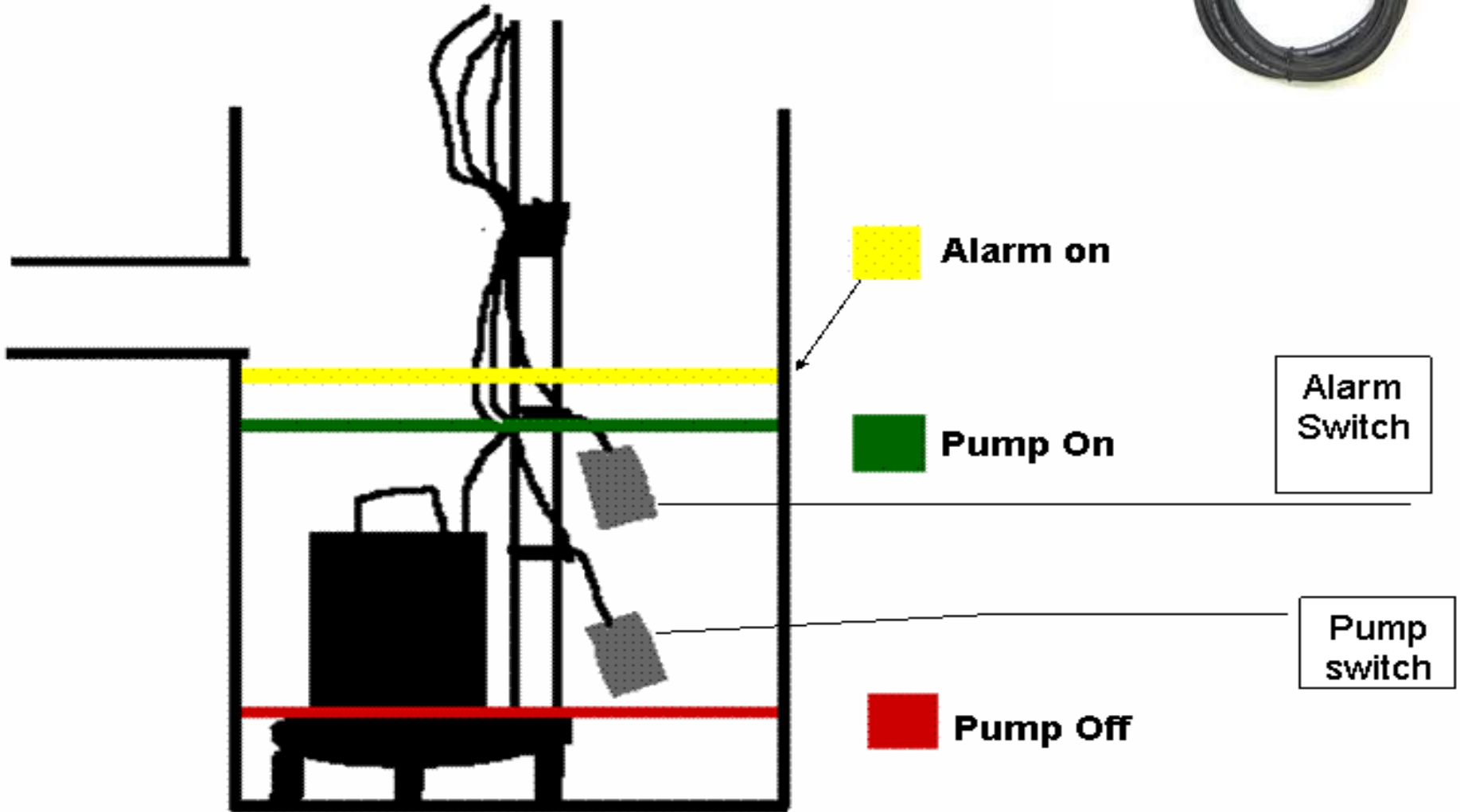
Distance = time \* (scaling factor)

**HC-SR04** 5V for Vcc, 5V logic

**TRIG:** Our 3.3V pulse from ESP8266 is OK enough

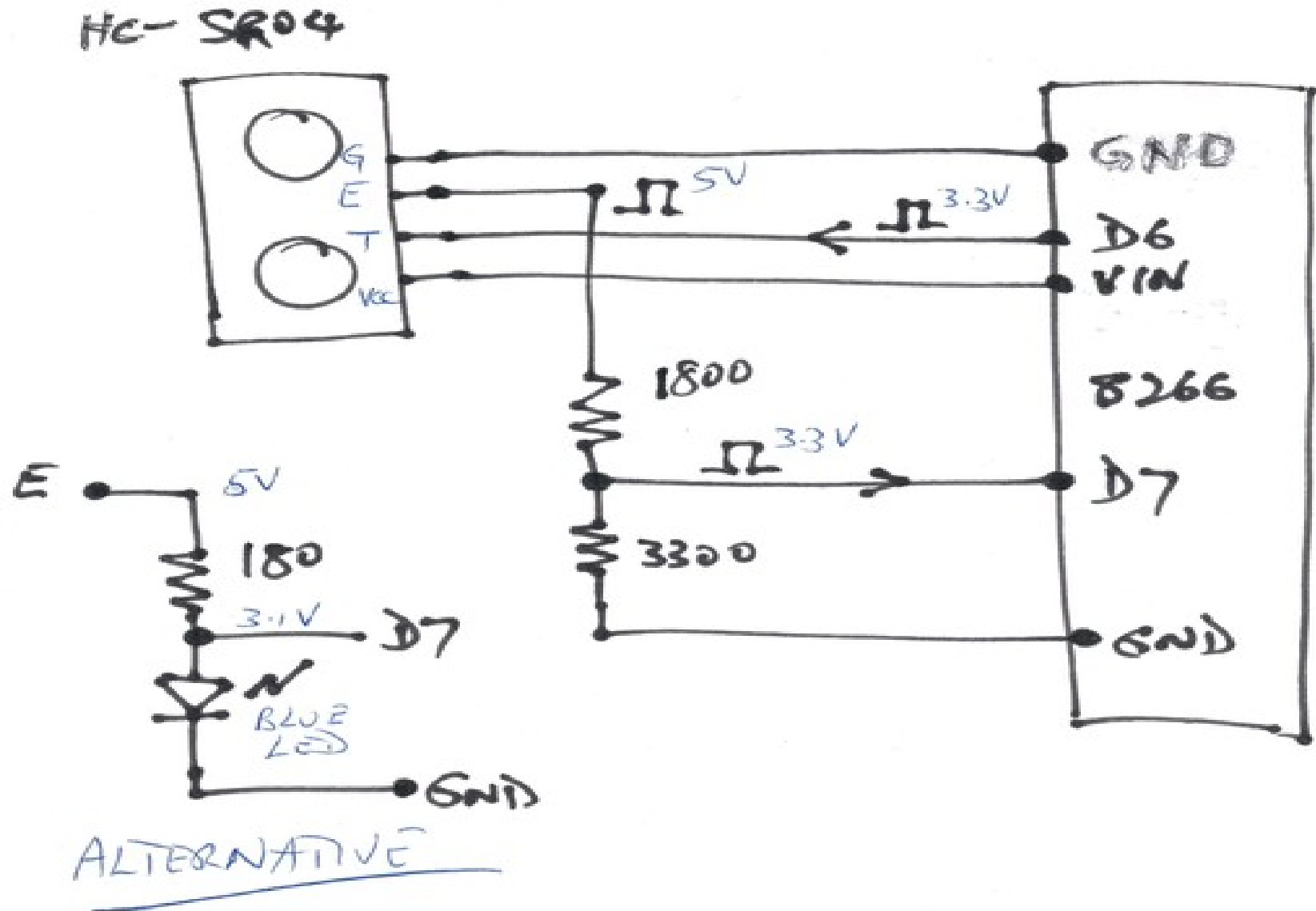
**ECHO:** We must divide 5V output pulse down to 3.3V

# Sump pump





# Connection



# Project 5 & project 6

How do these scripts meet our template?

Action/buildpage?

Set up GPIOs & schedule the jobs to do

HC-SR04: trig & echo pulses.

Visuals by LED

Scaling the distance measurement

# Telnet

**Telnet:** a Command Line Interface (ie command prompt) into a remote machine.

Rather generic.

Default port 23, but any port might be possible!

## Demos:

1. Try to telnet into a public website on port 80.

**telnet www.google.com 80**

Issue **GET /**

2. Try telnet to local wifi router's IP

# TNET on NodeMCU

Remote entry of commands to LUA:

We can issue any “ordinary” command to the LUA interpreter, just as though we were using ESPlorer locally.

(We DON'T get other button functions of the ESPlorer.)

Eg **gpio.write(4,0)** can turn LOW (on) the ESP12 LED.

To see the ESP's reply, use the “reply” button.

# Next Class

## Weather Station

Pressure

Temp

Humidity

