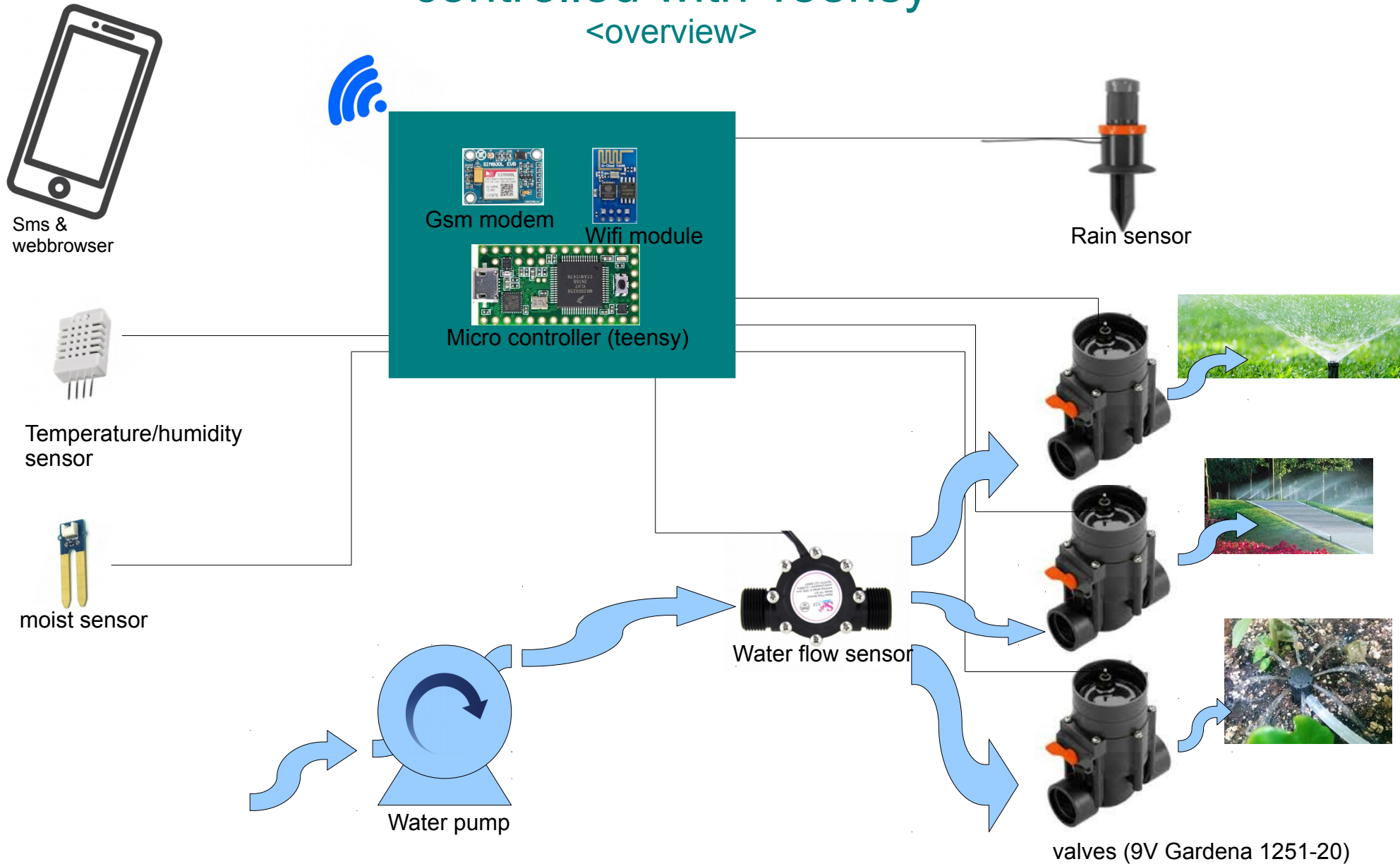


Gardena's Watering System

controlled with Teensy

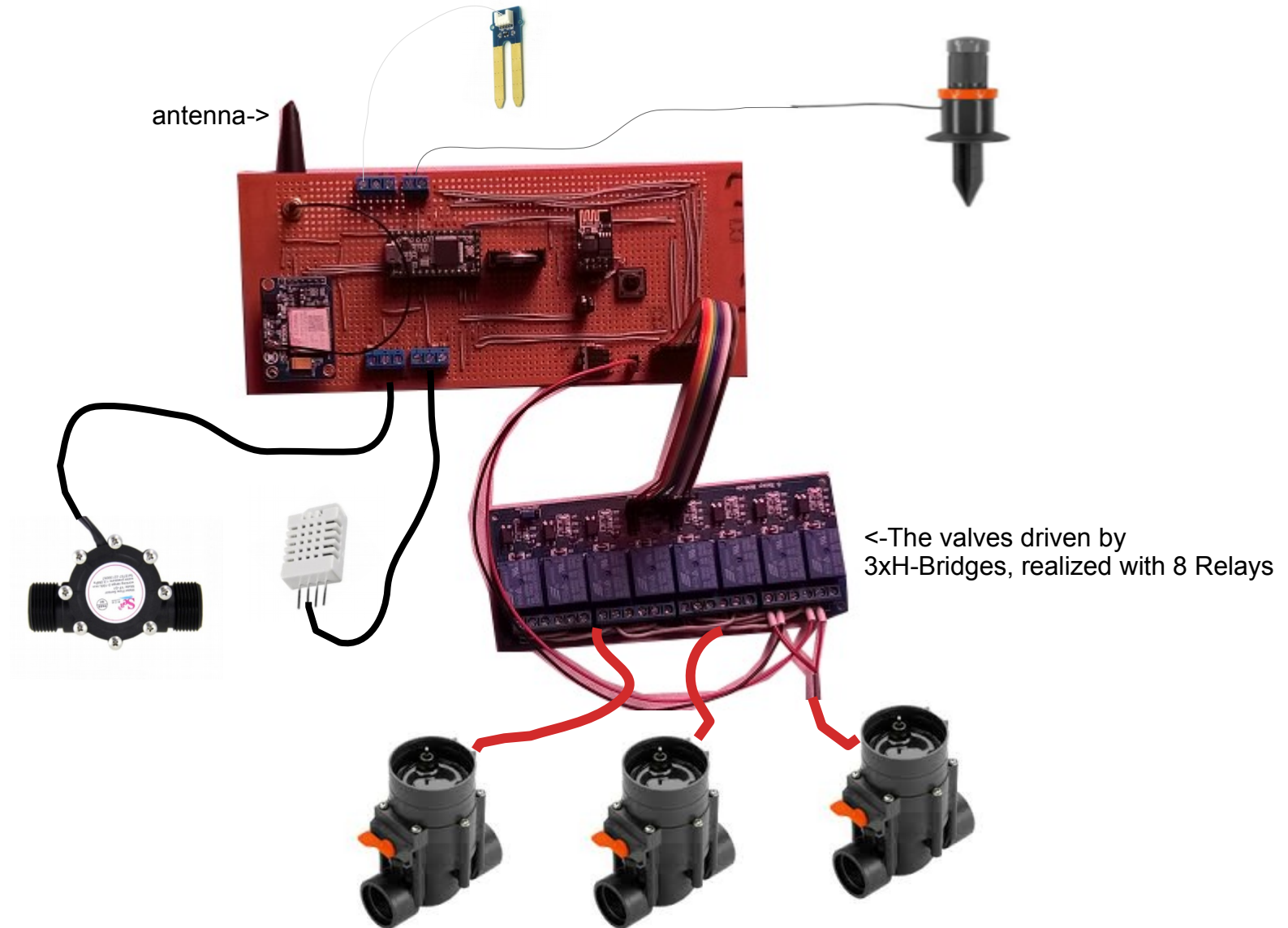
<overview>



Gardena's Watering System

controlled with Teensy

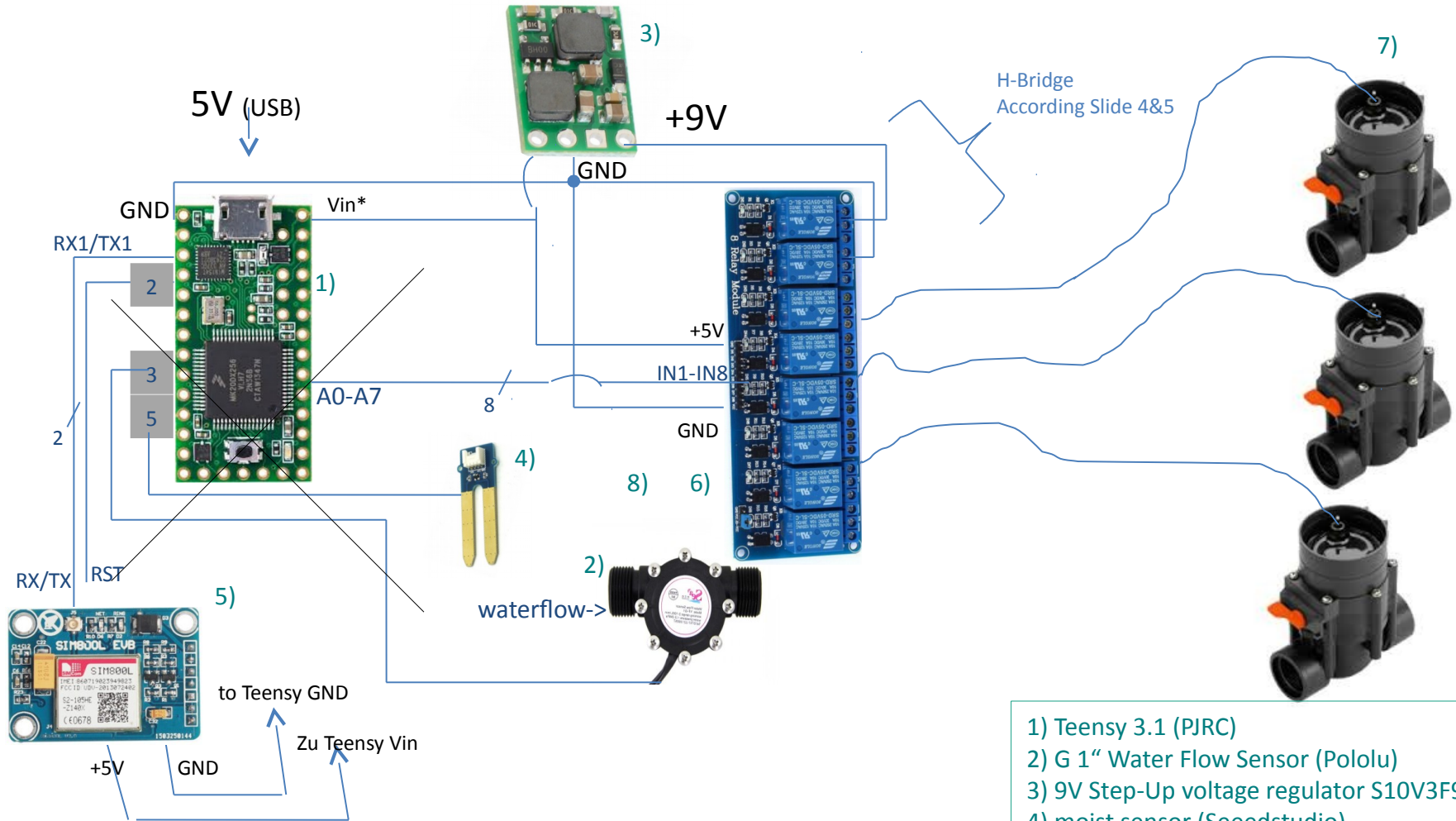
<assembly>



Gardena's Watering System

controlled with Teensy

<schematic>



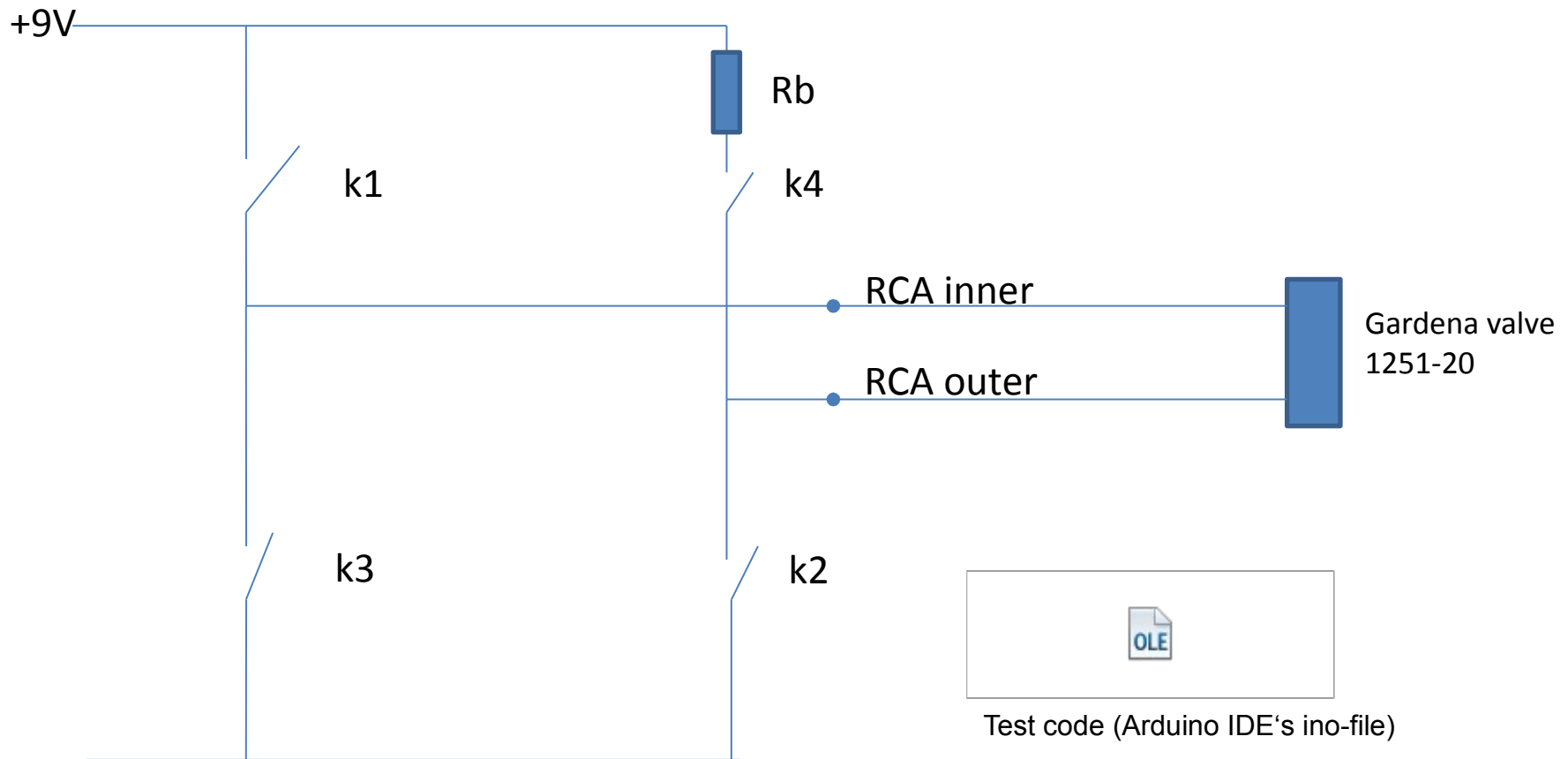
*Vin looped from USB = 5V

- 1) Teensy 3.1 (PJRC)
- 2) G 1" Water Flow Sensor (Pololu)
- 3) 9V Step-Up voltage regulator S10V3F9 (Seeedstudio)
- 4) moist sensor (Seeedstudio)
- 5) GSM Modul
- 6) 8-Kanal relays modul (china)
- 7) 1251-20 watering valve 9 v (gardena)
- 8) Gardena rain sensor
- 9) temperature sensor

Gardena's Watering System

controlled with Teensy

<H-Bridge Test – one valve driven by 4 relays>

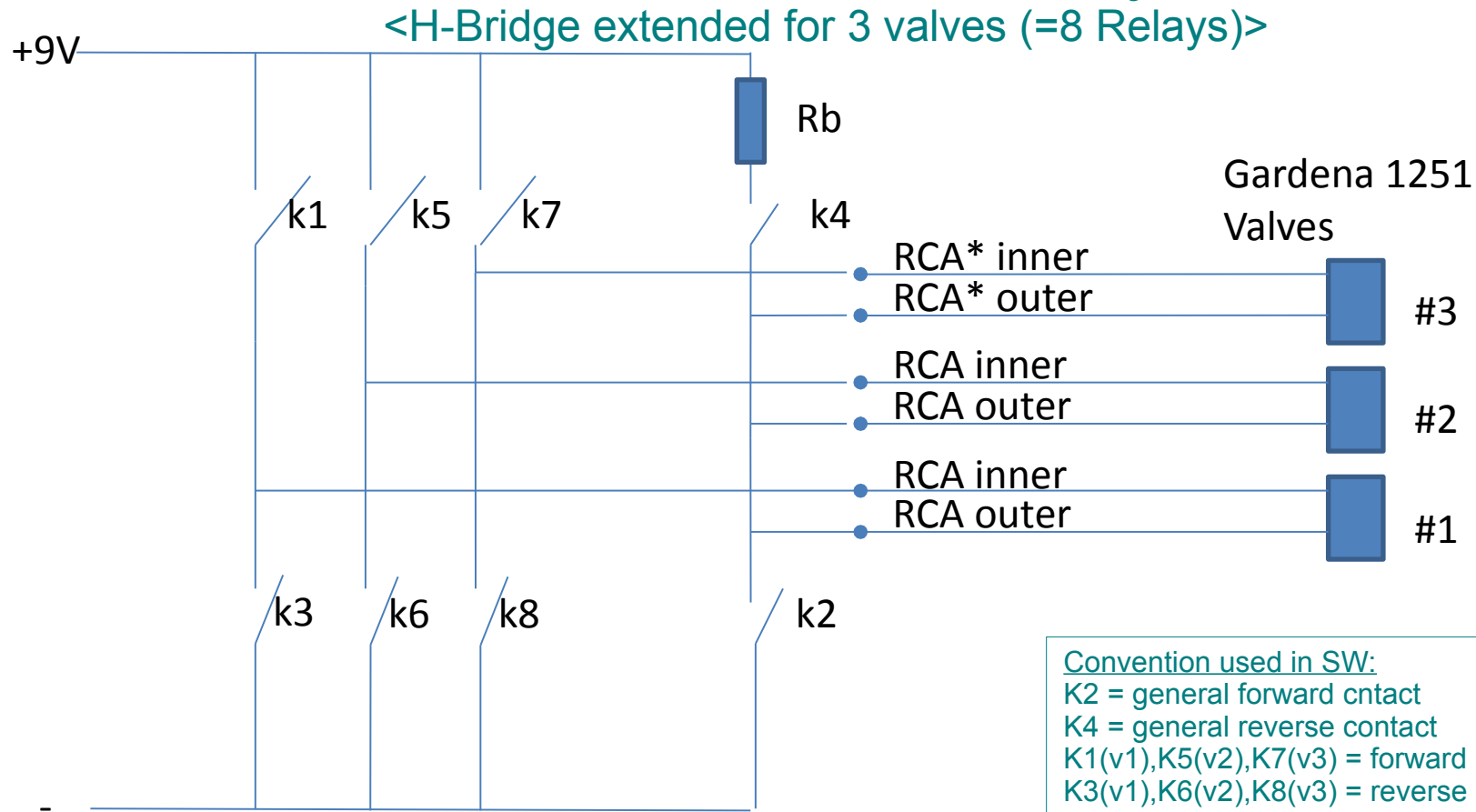


Ventil ein: K1&k2 = ON 250ms, K3&K4 OFF

Ventil aus: k3&k4 = ON 65ms, K1&k2 OFF; Rb ~150Ohm(!?)

Gardena's Watering System

controlled with Teensy



#1 on: K1&k2 = ON 250ms, K3&K4 OFF

#1 off: k3&k4 = ON 65ms, K1&k2 OFF; Rb ~150Ohm(!?)

#2 on: k5&k2 = ON 250ms

#2 off: k6&k4 = ON 65ms

#3 on: k7&k2 = ON 250ms

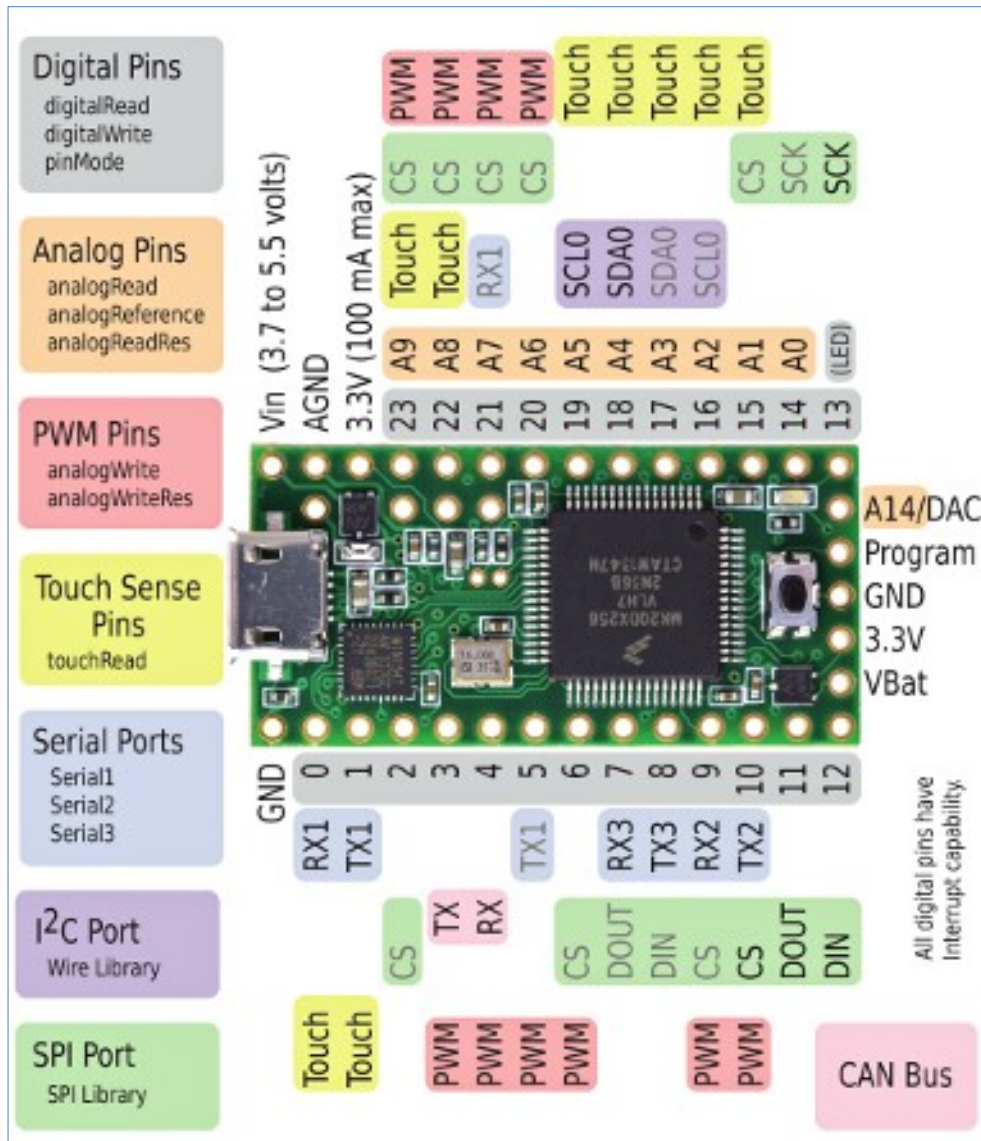
#3 off: k8&k4 = ON 65ms

*) the valves have RCA (Radio Corporation of America) connectors

Gardena's Watering System

controlled with Teensy

<Teensy 3.1 PIN's>



A9 = 23 -moist sensor

A8 = 22 -rain sensor

RX1/TX1 = 0-1 = serial1 - control GSM card

2 - GSM reset

3 - PIN for Waterflow sensor

4 - PIN for temperature

RX2/TX2 = 9-10 = serial2 - control ESP

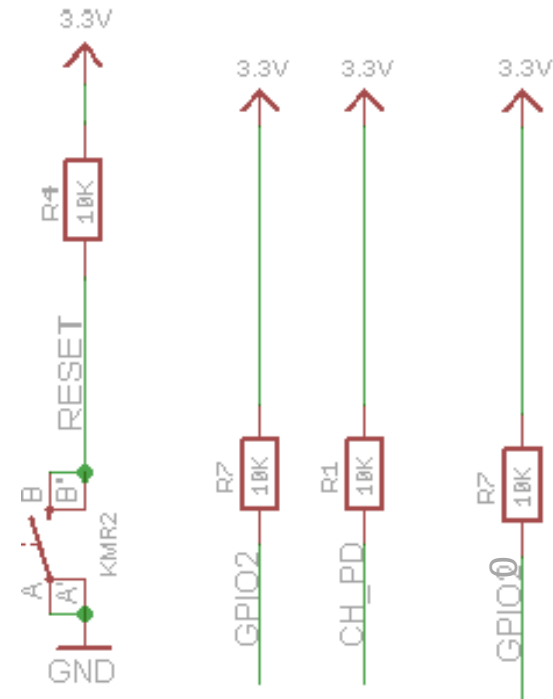
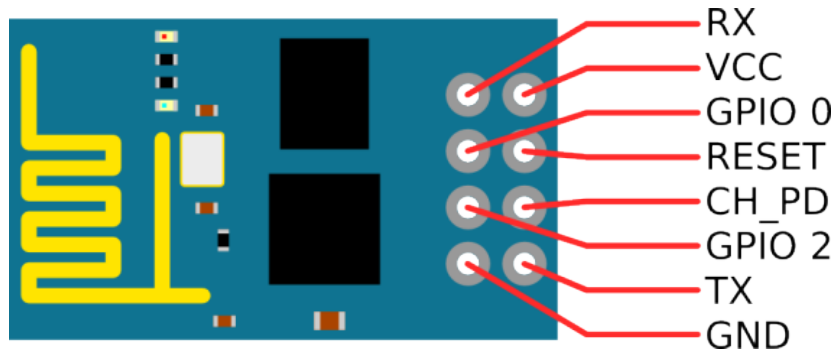
11,12,14-19 - control Relais card

- reserved

Gardena's Watering System

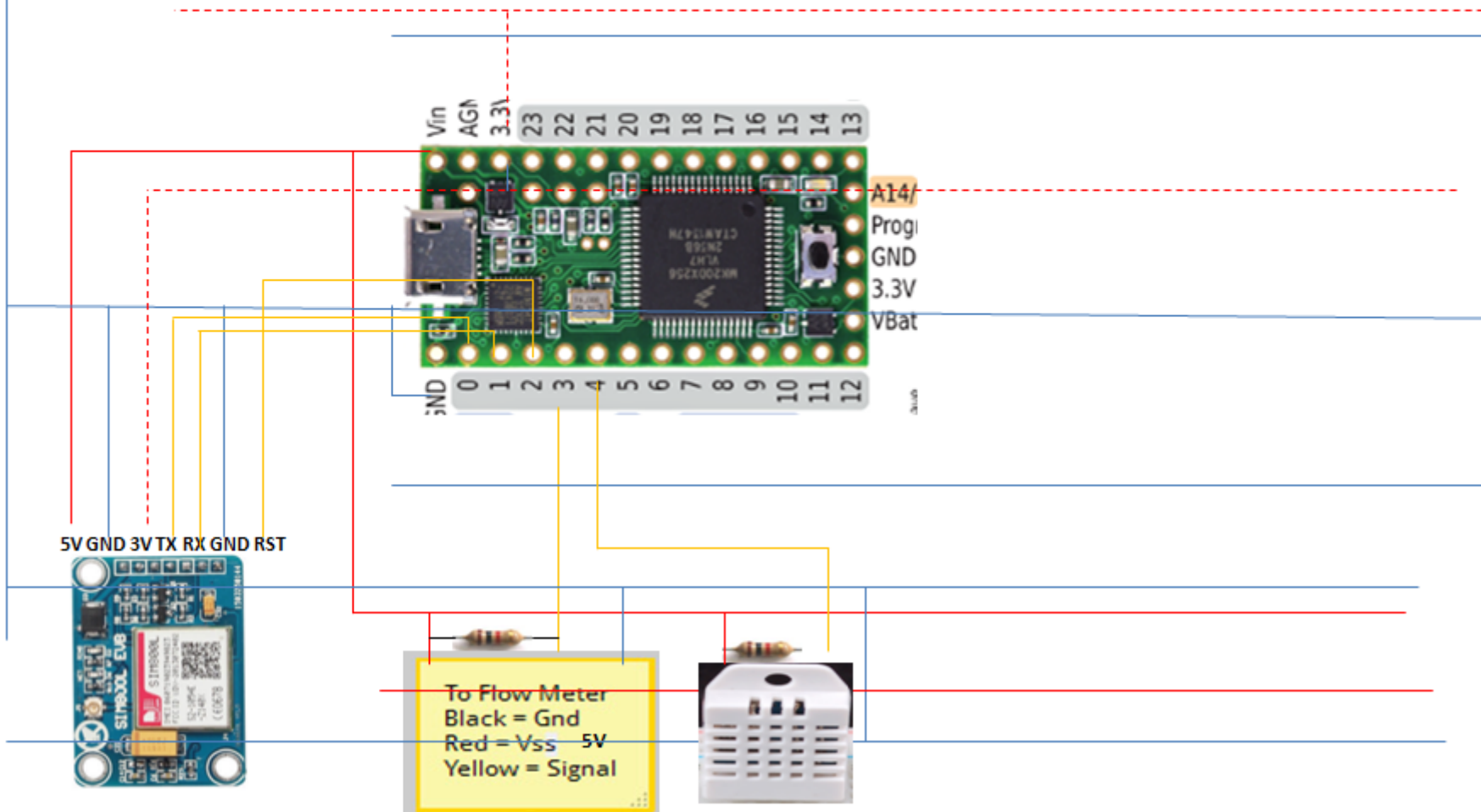
controlled with Teensy

<WLAN Module ESP01>



Gardena's Watering System

controlled with Teensy
<Temperatuer & Water Flow Sensor>

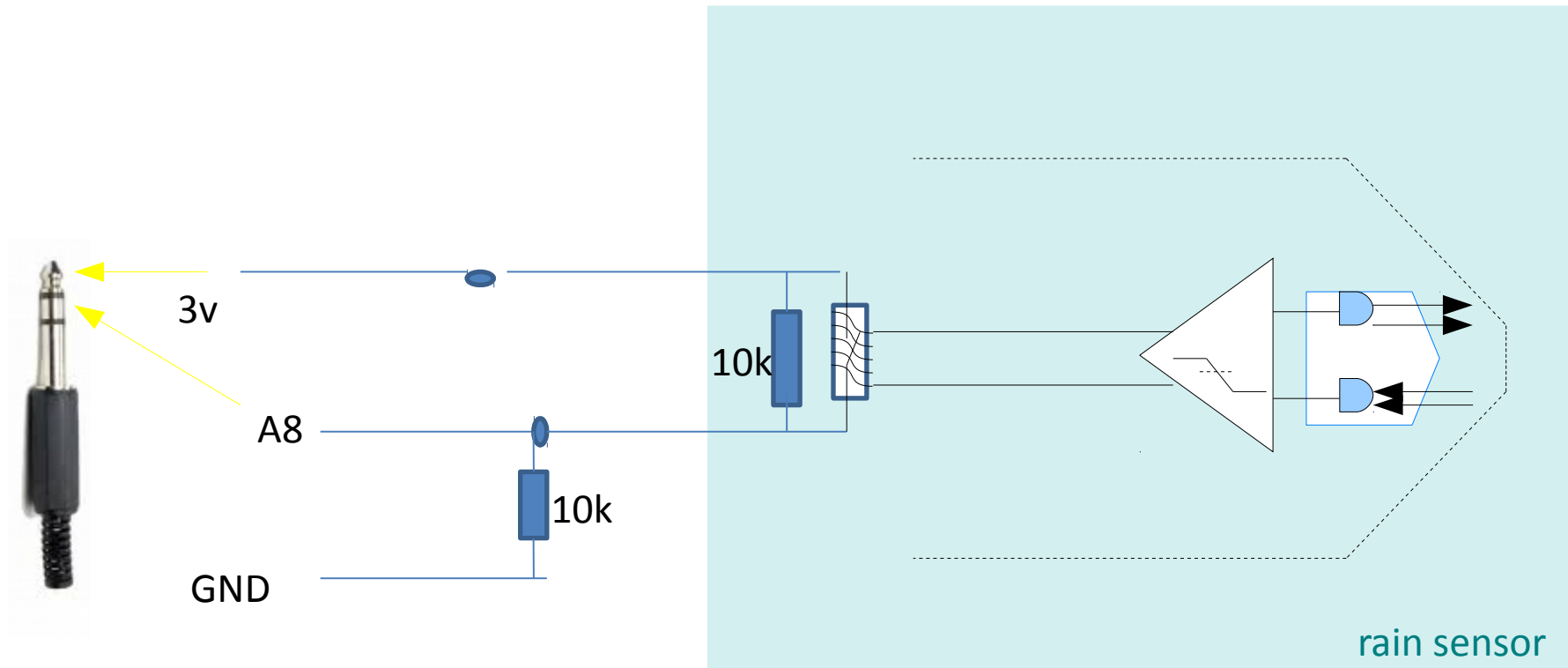


(confusing blue and red lines represent conductors on the board (-slide2-))

Gardena's Watering System

controlled with Teensy

<Rain Sensor>



Gardena's Watering System

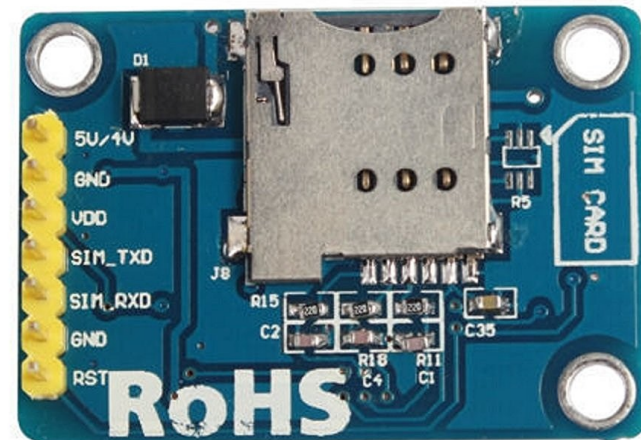
controlled with Teensy

<Sensor Connector in general>



Gardena's Watering System

controlled with Teensy
<GSM module SIM800L>



Gardena's Watering System

controlled with Teensy
<SW>

Gardena Control
(TODO: <update needed>)

