



Node-RED + NodeMCU ESP32s + BuiltIn LED thru Serial Port

02 Sept 2023 – Safyzan Salim

Scenario:

To control ESP32's built in led from Node-RED's dashboard thru serial comm.

Step 1: Write code for excepting serial input and switch on if the data is 5 (it's a string data)

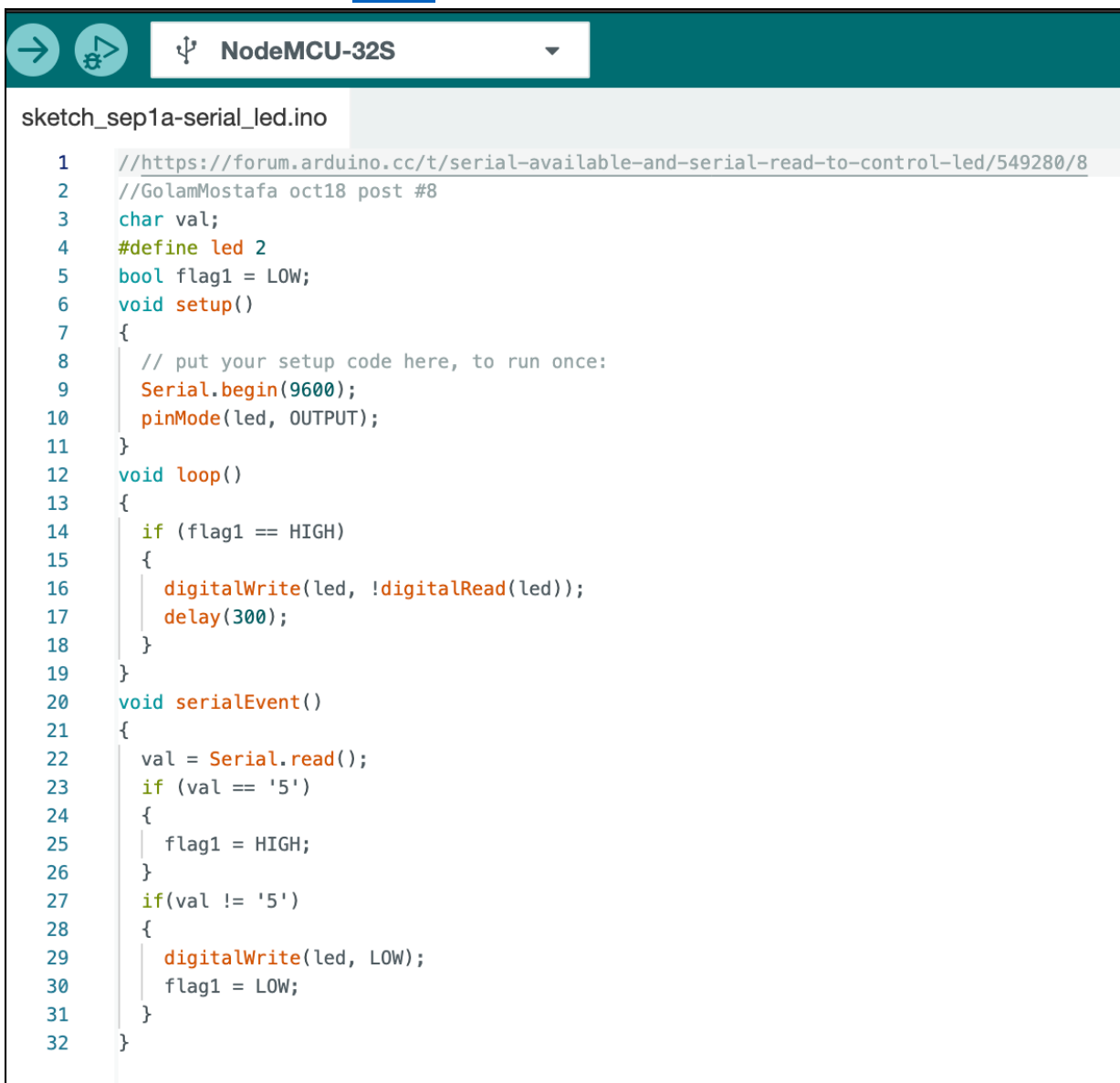
Step 2: Upload the sketch to NodeMCU ESP32-s & test its function.

Step 3: At Node-RED, add 2 x inject nodes and 1 x serial out node.

Step 4: Configure accordingly – refer to slide 4.

Step 5: Load dashboard – use button as switch.

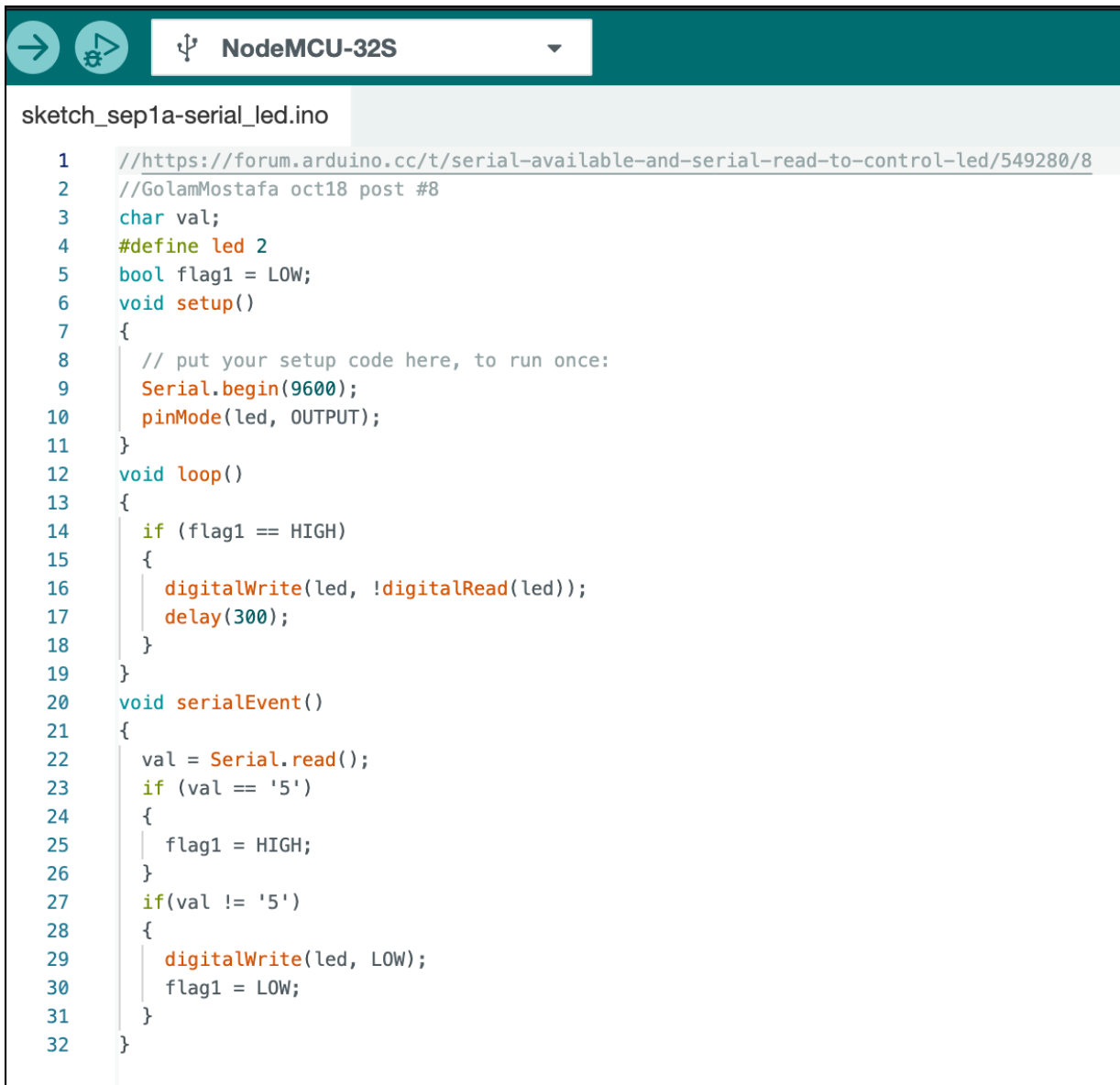
Download this sketch [HERE](#).



```
1 //https://forum.arduino.cc/t/serial-available-and-serial-read-to-control-led/549280/8
2 //GolamMostafa oct18 post #8
3 char val;
4 #define led 2
5 bool flag1 = LOW;
6 void setup()
7 {
8     // put your setup code here, to run once:
9     Serial.begin(9600);
10    pinMode(led, OUTPUT);
11 }
12 void loop()
13 {
14     if (flag1 == HIGH)
15     {
16         digitalWrite(led, !digitalRead(led));
17         delay(300);
18     }
19 }
20 void serialEvent()
21 {
22     val = Serial.read();
23     if (val == '5')
24     {
25         flag1 = HIGH;
26     }
27     if(val != '5')
28     {
29         digitalWrite(led, LOW);
30         flag1 = LOW;
31     }
32 }
```

You may download [Rafizah of PMS](#) and [Azizi of PMU](#) sketches to varies the serial read method.

Download this sketch [HERE](#).



```
sketch_sep1a-serial_led.ino
1 //https://forum.arduino.cc/t/serial-available-and-serial-read-to-control-led/549280/8
2 //GolamMostafa oct18 post #8
3 char val;
4 #define led 2
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22     val = Serial.read();
23     if (val == '5')
24     {
25         flag1 = HIGH;
26     }
27     if(val != '5')
28     {
29         digitalWrite(led, LOW);
30         flag1 = LOW;
31     }
32 }
```

Node-RED: Test by using minimal nodes

Name

ON LED 1

msg. payload

=

a_z

5

✕

1

Name

OFF LED 1

msg. payload

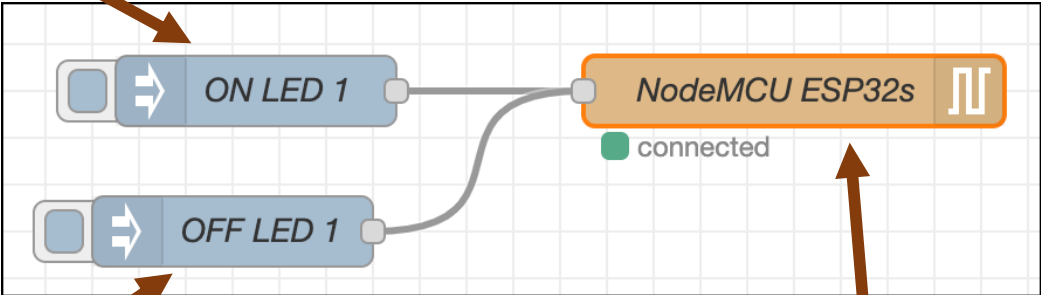
=

a_z

0

✕

2



3

Serial Port

/dev/tty.usbserial-1410:9600-8N1

✎

Name

NodeMCU ESP32s

Node-RED: Dashboard → add 1 tab and 1 group

The screenshot shows the Node-RED Dashboard configuration interface. At the top, there's a header with the text "dashboard" and several icons. Below this, there are tabs for "Layout", "Site", and "Theme". The "Layout" tab is selected. Under the "Layout" tab, there's a section titled "Tabs & Links". In this section, there are four tabs listed: "MPK", "Lab CAD 3", "Mini Weather Station", and "Tab 4". Below "Tab 4", there's a new tab entry "Tab 5" which is currently collapsed. To the right of "Tab 5", there are three buttons: "+ group", "edit", and "layout". At the bottom of the list, there's a group entry "Group 1".

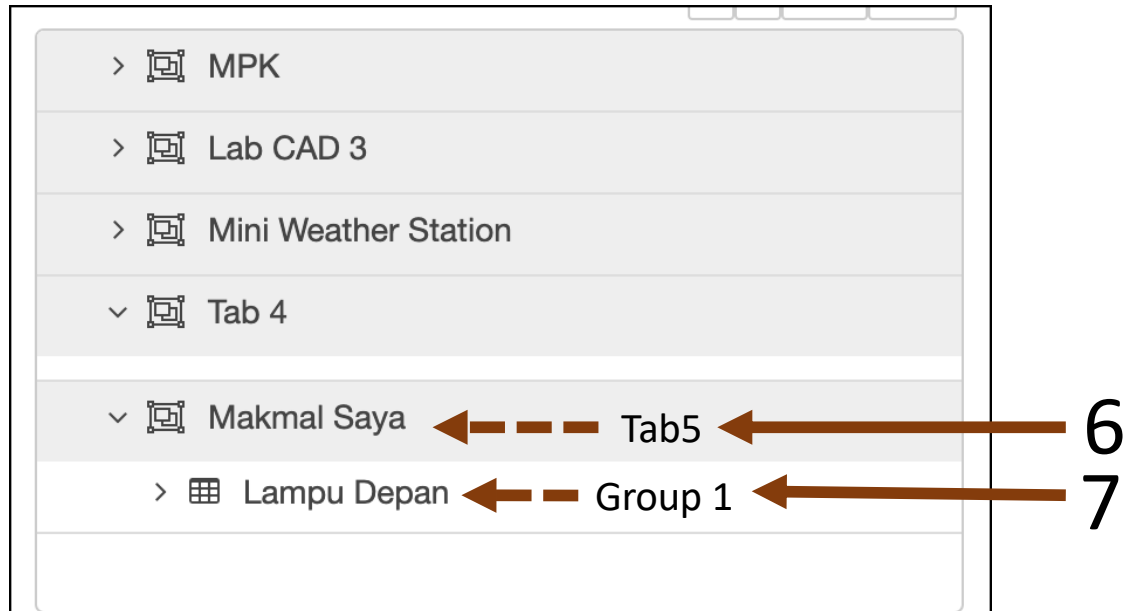
Diagram illustrating the Node-RED Dashboard configuration interface:

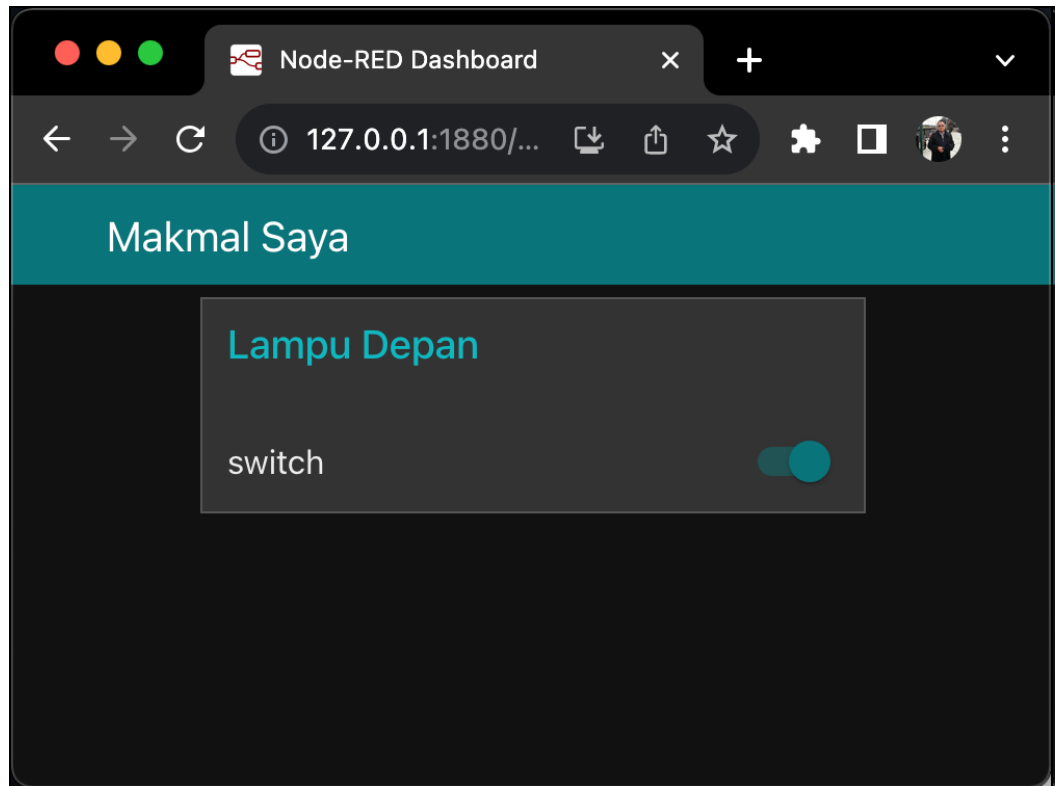
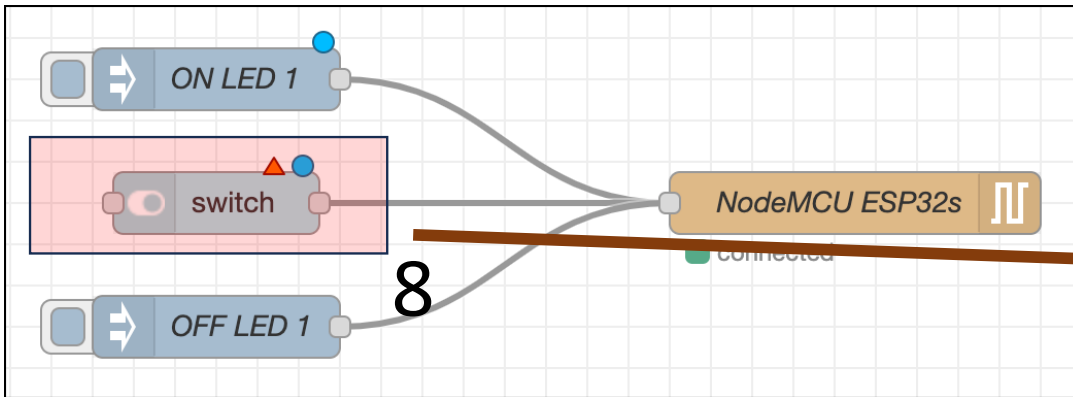
- The interface shows the "dashboard" header and navigation tabs: "Layout", "Site", and "Theme".
- Under the "Layout" tab, the "Tabs & Links" section is visible.
- Existing tabs include "MPK", "Lab CAD 3", "Mini Weather Station", and "Tab 4".
- A new tab, "Tab 5", is being added (indicated by a dashed arrow from step 4).
- Below "Tab 5", there are buttons for "+ group", "edit", and "layout".
- A new group, "Group 1", is being added (indicated by a dashed arrow from step 5).

4

5

Node-RED: Dashboard → add 1 tab and change the properties accordingly.





Edit switch node

Delete Cancel Done

Properties

Group [Makmal Saya] Lampu Depan

Size auto

Label switch

Tooltip optional tooltip

Icon Default

→ Pass through **msg** if payload matches new state: ☒

☒ When clicked, send:

On Payload a_z 5

Off Payload a_z 0

Topic $msg.topic$

Name

```
val = Serial.read();
if (val == '5')
{
  flag1 = HIGH;
}
if(val != '5')
{
  digitalWrite(led, LOW);
  flag1 = LOW;
}
```

9

10

END