

# B31DG Assignment 1

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## REVISION HISTORY

Date	Author Name	Version	Notes
15/02/2024	Vidushi	1	Testing the push button and LED with ESP32 on Arduino IDE.
17/02/2024	Vidushi	1	Calculating the parameters and generating the SYNC signal.
18/02/2024	Vidushi	2	Generating data signal signal based on button input.
19/02/2024	Vidushi	3	Obtaining a sustained state-change after using pushbutton.
21/02/2024	Vidushi	1	Setting up ESP-IDF extension in Visual Studio Code
22/02/2024	Vidushi	1	Getting familiar with the environment.
24/02/2024	Vidushi	1	Writing the application in the ESP-IDF environment
26/02/2024	Vidushi	2	Solving the errors related to header files and generating the output.

# PARAMETER CALCULATION

**Author's Name:** Vidushi Vinod Naduparambil

**First 5 letters of surname:** N A D U P

Parameter	Numerical Mapping	Calculation
A	“N” maps to 13	$13 \times 100\mu\text{s} = 1300\mu\text{s}$
B	“A” maps to 1	$1 \times 100\mu\text{s} = 100\mu\text{s}$
C	“D” maps to 4	$4 + 4 = 8$
D	“U” maps to 6	$6 \times 500\mu\text{s} = 3000\mu\text{s} = 3\text{ms}$
Mode	“P” maps to 11	$(11 \% 4) + 1 = 4$

**Mode 4** would result in a waveform where half the **B** and **D** time intervals until the Output Select push button is pressed again.

# CIRCUIT DIAGRAM

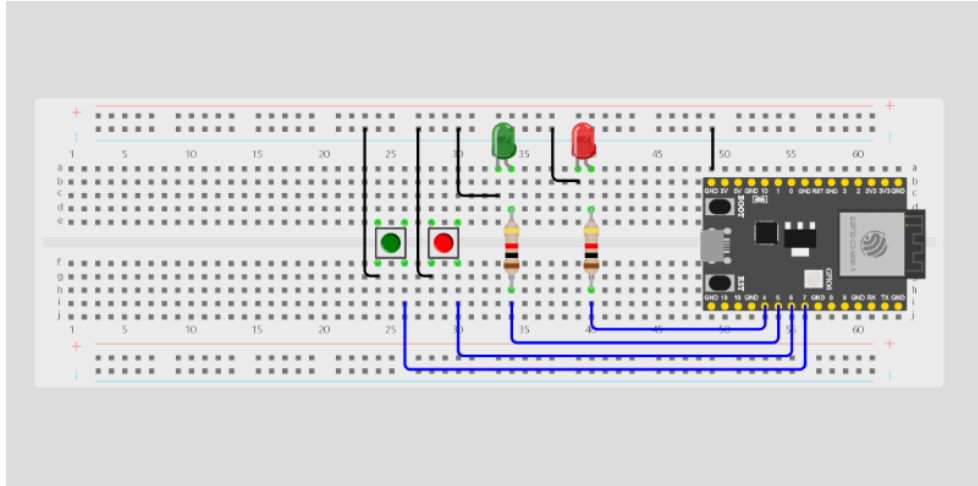


Figure 1. Schematic diagram of the given application

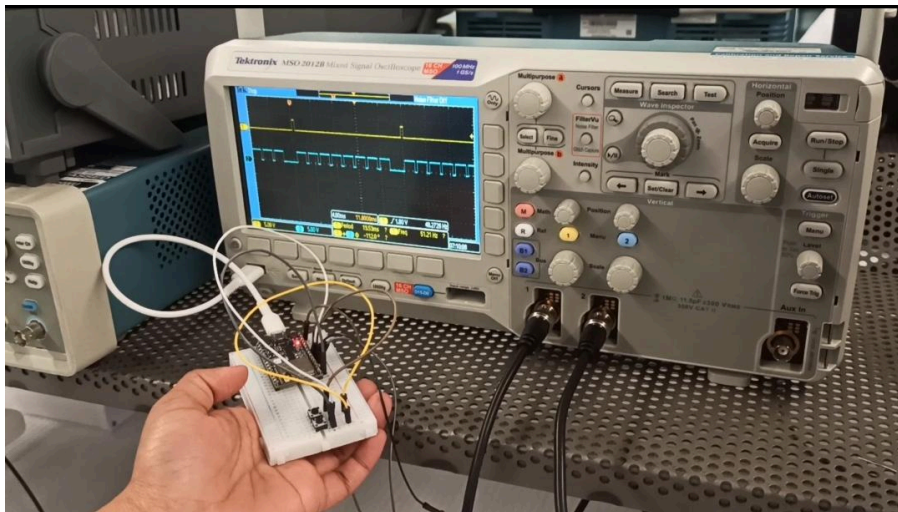
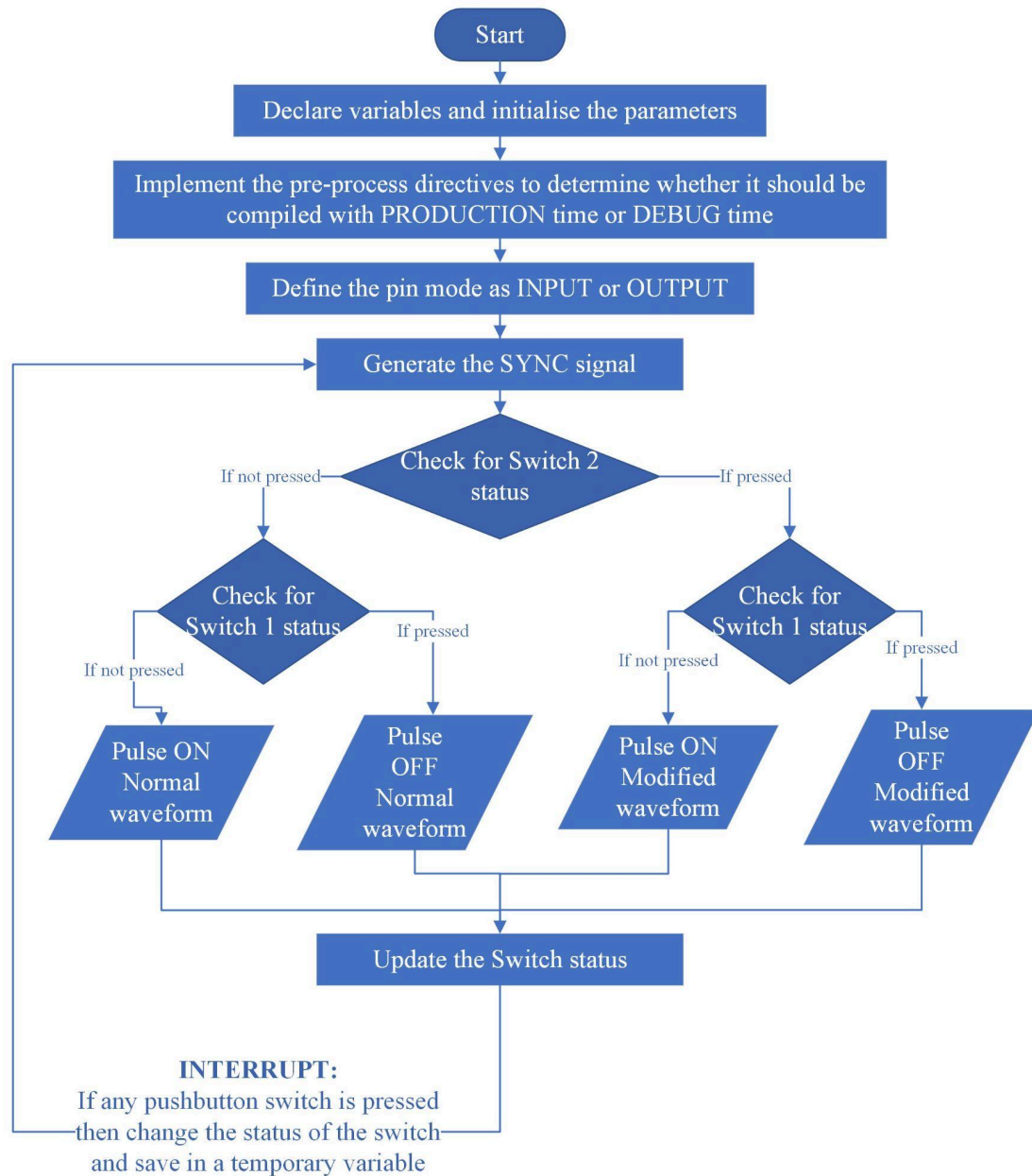


Figure 2. Real-life interface of the given application

# FLOWCHART



# RESULTS

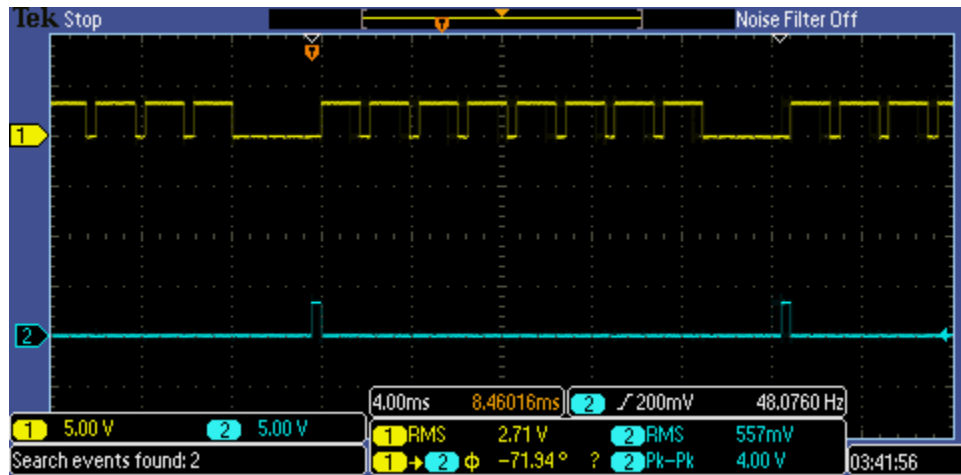


Figure 3. Case 1 (Pulse ON and Normal Waveform)

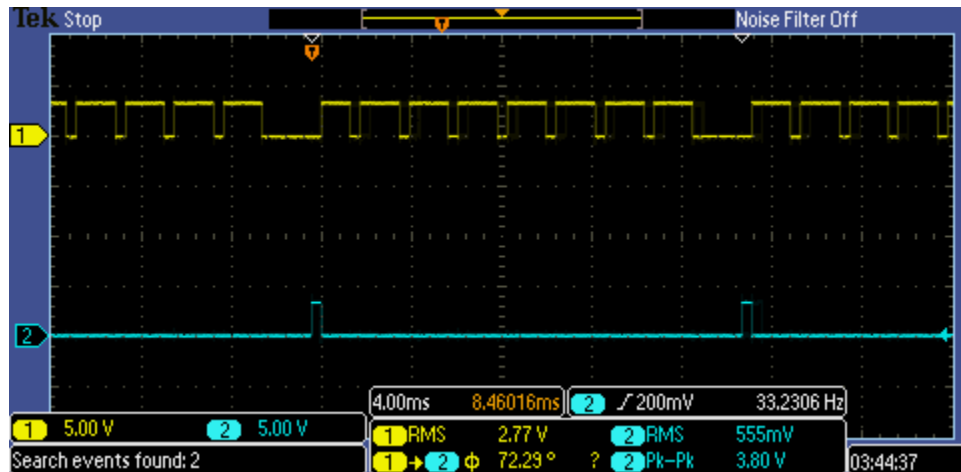


Figure 4. Case 2 (Pulse ON and Modified Waveform)

# RESULTS

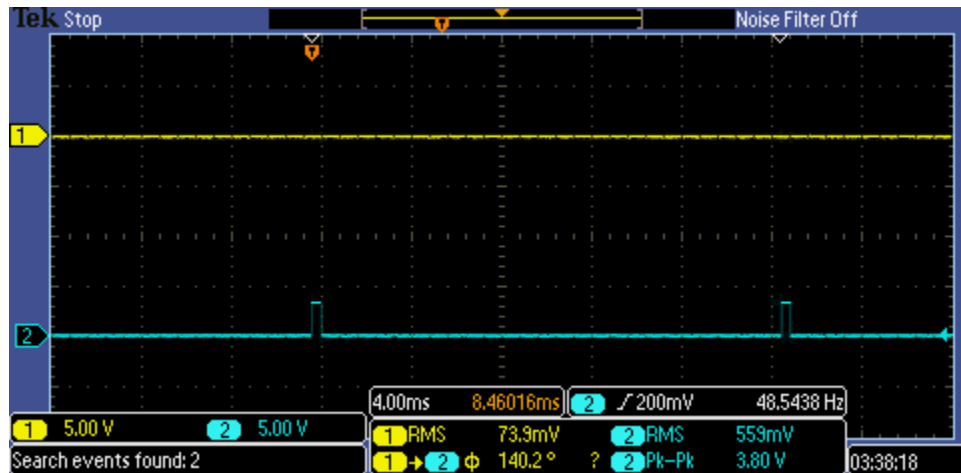


Figure 5. Case 3 (Pulse OFF and Normal Waveform)

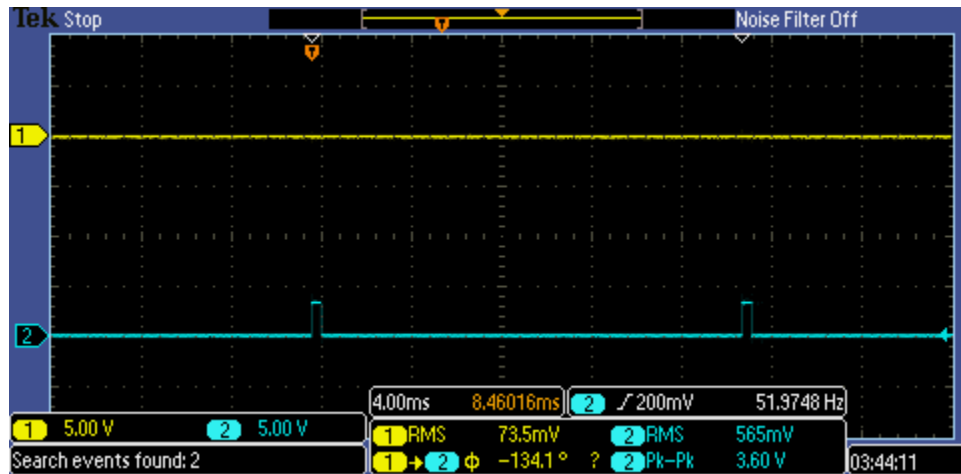


Figure 6. Case 4 (Pulse OFF and Modified Waveform)



# APPENDIX

Link for GitHub Repository