

ESP-32 Assignment

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I. ABSTRACT

A 4-bit priority encoder has inputs D_3, D_2, D_1 and D_0 in descending order of priority. The two-bit output AB is generated as 00, 01, 10 and 11 corresponding to inputs D_3, D_2, D_1 and D_0 , respectively. The Boolean expression of the output bit B is to be implemented.

and implement the Boolean expression $B = \neg D_3 * D_2 + \neg D_3 * \neg D_1$ using logical operations. The result of the Boolean logic controls the output pin, setting it HIGH or LOW to turn the LED on or off accordingly. Upload the code, power on the ESP32, and observe the output. The Truth Table for the priority encoder is given in the table 2. .

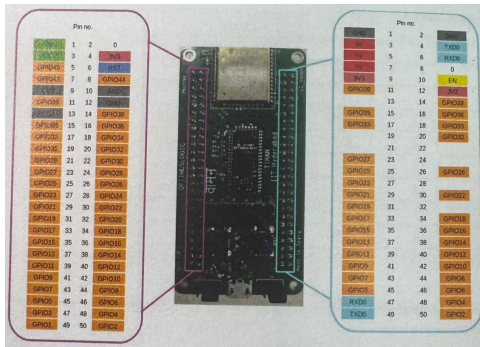


Fig. 1.

II. COMPONENTS

The required components list is given in Table: I.

Components	Value	Quantity
LEDs		1
Arduino	UNO	1
Jumper Wires		10
Breadboard		1
Vaman Board		1

TABLE I

III. PROCEDURE

To set up the Boolean logic circuit on an ESP32, connect GPIO pins (e.g., GPIO15 for D_3 , GPIO2 for D_2 , GPIO4 for D_1 , and GPIO16 for D_0) as inputs, with VCC or GND based on the truth table. Connect an LED to an output pin (e.g., GPIO13 for B). In the code, use digitalRead to read the inputs

D_3	D_2	D_1	D_0	A	B
1	×	×	×	0	0
0	1	×	×	0	1
0	0	1	×	1	0
0	0	0	1	1	1

TABLE II

IV. RESULTS

Download the code given in the link below and execute them to see the output as shown in Fig.2 by observing the LED. <https://github.com/salad-12/FWC-INTERNSHIP/blob/main/esp/code>

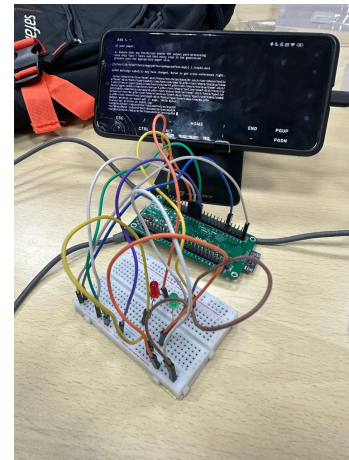


Fig. 2.

V. CONCLUSION

Encoders play a critical role in a wide range of applications, offering precise and reliable data about position, speed, and direction. The ESP-32 on the vaman board is a versatile microcontroller with Wi-Fi, Bluetooth and extensive GPIO, ideal for IoT and embedded systems. Its integration with the vaman boards features makes it suitable for prototyping and deploying smart, connected projects.