



# ARM Assignment

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## I. ABSTRACT

This paper explains about the three 4-variable Boolean functions  $f_1$ ,  $f_2$ , and  $f_3$ , represented as sums of minterms. The values are given as follows:  $f_1 = \Sigma(0, 2, 5, 8, 14)$ ,  $f_2 = \Sigma(2, 3, 6, 8, 14, 15)$ , and  $f_3 = \Sigma(2, 7, 11, 14)$ . Using an AND gate for  $f_1$  and  $f_2$ , followed by an XOR operation with  $f_3$ , the task is to determine the output function  $f$  in terms of its sum of minterms. The options provided correspond to various minterm combinations, testing the understanding of logic gates and Boolean simplification in a circuit context.

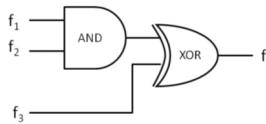


Fig. 1.

- 1)  $\Sigma(7, 8, 11)$
- 2)  $\Sigma(2, 7, 8, 11, 14)$
- 3)  $\Sigma(2, 14)$
- 4)  $\Sigma(0, 2, 3, 5, 6, 7, 8, 11, 14, 15)$

The above question must be implemented and verified in arm using rasperry pi.

## II. COMPONENTS

The required components list is given in Table: I., pin diagram of vaman is shown in Fig.1.

Components	Quantity
vaman	1
led	1
Jumper Wires	20
Breadboard	1

TABLE I

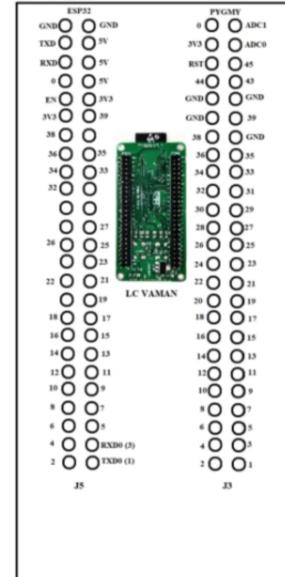


Fig. 2.

## III. PROCEDURE

- 1) Pin Configuration of vaman board shown in Fig-2.
- 2) Make connections of vaman to led as per below table.

Led-1	vaman - PYGMY
Anode	GPIO-13
Cathode	Gnd

TABLE II

- 3) Give short connections to inputs called a,b,c,d shown in fig-3.
- 4) connect raspberrypi to the mobile and identify the ip address of the raspberrypi.

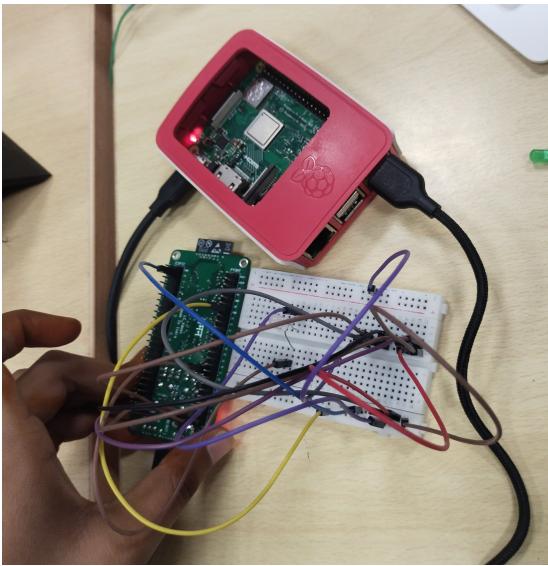


Fig. 3.

- 5) Execute the arm code with wifi in nvim editor using the command called make -j4.
- 6) After upload the arm-code into raspberrypi board using the commands which is shown in fig-4.

```
[X] Verifying metadata
FastREAD 0x0B ( 8 )
[X] Success: read_back == data
Operating mode : [m4]
setting appfga inactive
image_info is already set correctly, not writing again
setting m4app active
writing new image_info to metadata
Erasing designated flash pages
Erase 4.0 KiB ( 0x20 ) at 0x13000
Writing metadata
Write 12 bytes
[X] Verifying metadata
FastREAD 0x0B ( 12 )
[X] Success: read_back == data
p13@raspberrypi:~ $ sudo python3 /home/pi3/TinyFPGA-Programmer-Application/tinyfpga-programmer-gui.py --port /dev/ttyACM0 --m4app bl
ink.bin --mode m4
[CL] mode
ports = ['/dev/ttyACM0 (QuickFeather)'] 1
Using port /dev/ttyACM0 (QuickFeather)
Programming m4 application with blink.bin
Erasing designated flash pages
Erase 32.0 KiB ( 0x52 ) at 0x80000
Erase 4.0 KiB ( 0x20 ) at 0x8000
Erase 4.0 KiB ( 0x20 ) at 0x89000
Writing binary
Write 37952 bytes
[XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX]
Verifying binary
FastREAD 0x0B ( 37952 )
[XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX]
Success: read_back == data
Writing metadata
Erasing designated flash pages
Erase 4.0 KiB ( 0x20 ) at 0x13000
Writing metadata
Write 8 bytes
[X] Verifying metadata
FastREAD 0x0B ( 8 )
[X] Success: read_back == data
Operating mode : [m4]
setting appfga inactive
image_info is already set correctly, not writing again
setting m4app active
writing new image_info to metadata
Erasing designated flash pages
Erase 4.0 KiB ( 0x20 ) at 0x13000
Writing metadata
Write 12 bytes
[X] Verifying metadata
FastREAD 0x0B ( 12 )
[X] Success: read_back == data
p13@raspberrypi:~ $
```

Fig. 4.

#### IV. RESULTS

- 1) Download the codes given in the link below and execute them to see the output as shown in figure 5.
- 2) <https://github.com/BynaboyinaAiswarya/Fwc/blob/main/Arm/main.c>

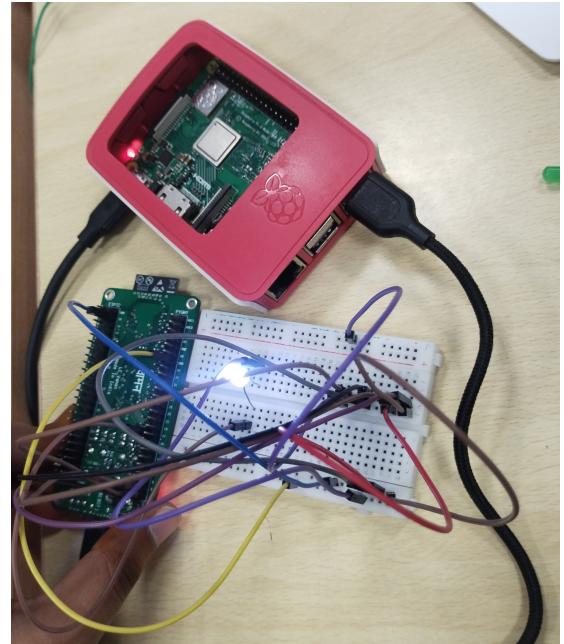


Fig. 5.

#### V. CONCLUSION

Hence implementation of above abstract using arm code with vaman board,raspberrypi and verification through led is done