SOP expression for Boolean Function

Anusha Jella

August 30, 2022

Contents

Abstract

This manual shows how to use Arduino with LED to represent Boolean function.

1 Components

Components	Value	Quantity
Arduino	UNO	1
LED	-	1
Jumper wires	M-M	6
Breadboard		1

Table 1.0

2 Hardware

Problem 2.1 Plug the display to the breadboard and make the connections in Table 2. Henceforth, all 5V and GND connections will be made from the breadboard.

Arduino	Breadboard
5V	Top Green
GND	Bottom Green

Table 2

3 Software

Problem 3.1. Now make the connections as per Table 3.0 and execute the following program after downloading.

https://github.com/AnushaJella/assignment1_avr_c/blob/main/codes/main.c

In the truth table in Table 3.1, A,B,C are the inputs and F is the output.Using boolean logic

A	B	C	F(A,B,C)
0	0	0	1
0	0	1	0
0	1	0	0
0	1	1	1
1	0	0	1
1	0	1	0
1	1	0	0
1	1	1	1

Table 3.1

A \ BC	00	01	11	10
0	1	0	1	0
1	1	0	1	0

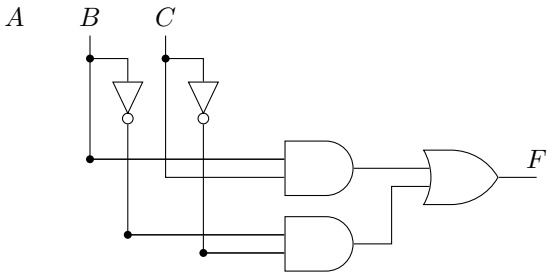
K-Map

$$F = B' * C' + B * C \tag{1}$$

	A	B	C
Input	0	0	0
Arduino	6	7	8

Table 3.0

logic circuit for F as in eq.1



2

Problem 3.2. Verify above code for all inputs from 000-111.