



Course Title: Microprocessor interfacing and embedded system (3 Cr)

Team project

Semester:

Group: 3

Section:

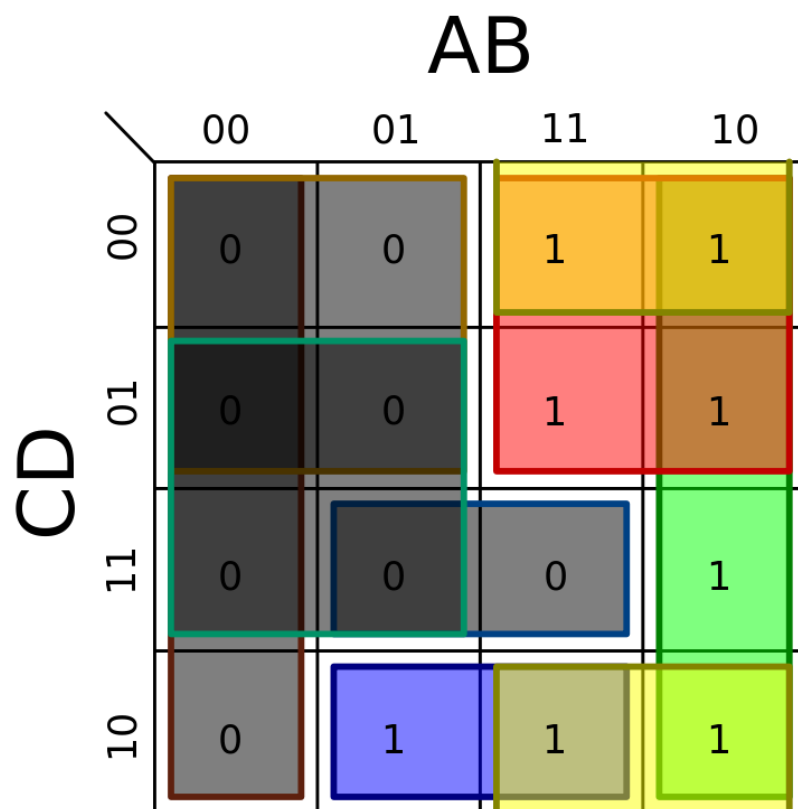
Names, Student IDs and emails:

Implement the given encryption table using microcontroller. Use single pole, double throw switch to configure the inputs for high and low conditions. Use LEDs to represent the corresponding output statuses

Input				Output			
I3	I2	I1	I0	O3	O2	O2	O1
0	0	0	0	0	1	0	1
1	0	0	0	0	0	1	1
0	1	0	0	1	0	1	0
1	1	0	0	0	1	1	0
0	0	1	0	1	0	1	1
1	0	1	0	1	1	0	0
0	1	1	0	0	1	1	0
1	1	1	0	1	1	0	0
0	0	0	1	0	0	0	1

1	0	0	1	0	0	1	1
0	1	0	1	1	0	1	1
1	1	0	1	1	1	0	0
0	0	1	1	1	0	1	0
1	0	1	1	0	1	1	1
0	1	1	1	0	0	1	0
1	1	1	1	1	1	1	0

Hints for deriving the logic expression:



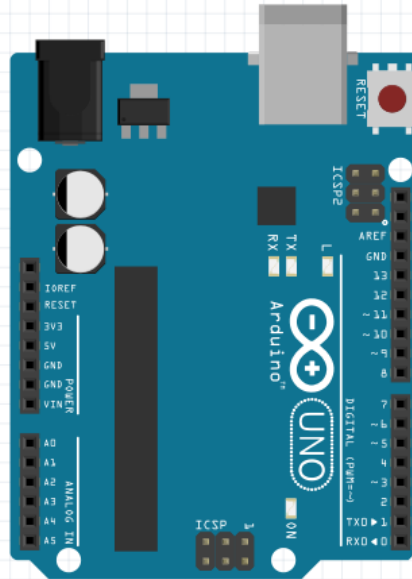
$$f(A,B,C,D) = \Sigma(6,8,9,10,11,12,13,14)$$

$$F = AC' + AB' + BCD' + AD'$$

$$F = (A+B)(A+C)(B'+C'+D')(A+D')$$

Example microcontroller: (Arduino UNO)

MCU : Atmega 328
 Input voltage : 7V-12V
 Operating voltage : 5V
 CPU Speed : 16MHZ
 Analog In/Out : 6/0
 Digital IO/PWM : 14/6
 EEPROM : 1KB
 SRAM : 2KB
 Flash : 32KB
 UART : 1
 USB : Regular



ARDUINO PIN		MICROCONTROLLER PIN
0	-	PD0(RXD)
1	-	PD1(TXD)
2	-	PD2(INT0)
3	-	PD3(INT1)
4	-	PD4
5	-	PD5
6	-	PD6
7	-	PD7
8	-	PB0
9	-	PB1
10	-	PB2(SS')
11	-	PB3(MOSI)
12	-	PB4(MISO)
13	-	PB5(SCK)
A0	-	PC0
A1	-	PC1
A2	-	PC2
A3	-	PC3
A4	-	PC4(SDA)
A5	-	PC5(SCL)