RKSD College, Kaithal

The Following students had successfully completed project work in Electronics in session 2021-22.

Sr. No.	Class	Name	Topic
1	B. Sc.-VI	SANJAY	INFRARED PROXIMITY SENSOR
2	B. Sc.-VI	DIPANSHU	STEREO AMPLIFIER
3	B. Sc.-VI	VIKAS	UP CONTROLLED TRAFFIC LIGHT
4	B. Sc.-VI	ANKIT	INFRARED REMOTE CONTROLL
5	B. Sc.-VI	GURPREET	INFRARED PROXIMITY SENSOR
6	B. Sc.-VI	NAVEEN	INFRARED REMOTE CONTROLL
7	B. Sc.-VI	PRINCE	STEREO AMPLIFIER
8	B. Sc.-VI	DILSHAD	LIQUID DISPENSER
9	B. Sc.-VI	HARSH DEEP	LIQUID DISPENSER
10	B. Sc.-VI	RAMAN	OBSTACLE DETECTOR
11	B. Sc.-VI	SAPANA	UP CONTROLLED TRAFFIC LIGHT
12	B. Sc.-VI	GITIKA	UP CONTROLLED TRAFFIC LIGHT

Dr. Rajesh Singh
Convener

Dr. SK Goyal
Principal

Course B.SC(ELECTRONICS)
Semester V & VI
Paper Code III (Practical)

Total Marks: 100
Time: 3+ 3 Hours

Practical: 50 (Experiment: 20, Viva-Voce: 20, Practical Work Book: 10)
Project: 50 (Demonstration: 20, Viva-Voce: 20, Project Work Book: 10)
Each Student is to perform at least six experiments from Section-A and prepare one project from Section-B.

Section-A

1. (a) Addition of Two 16 Bit Numbers or microprocessor-Kit.
   (b) Subtraction of two 16 Bit numbers on Microprocessor-Kit.
2. Multibyte Addition/Subtraction of two numbers by repetitive addition/subtraction on Microprocessor-kit.
3. Division of two 8-Bit numbers by repetitive subtraction on microprocessor-Kit.
4. Multiplication of Two 8-Bit Numbers on Microprocessor –Kit.
5. Find the smallest/largest number from a give series of numbers on Microprocessor-Kit.
6. To sort a given series of unsigned numbers in Ascending/ descending order on Microprocessor-kit.
7. Generate a time delay through software on Microprocessor-Kit.
8. Check even parity/add parity of binary number on microprocessor-Kit.
9. Program to generate Square, Sine and triangular waves using Microprocessor-Kit.
10. Computer Programming in C using if, else, for, while statements.
11. Computer Programming in C using arrays and pointers.

Section-B

1. Digital Frequency meter.
2. Digital Voltmeter.
3. Digital Clock.
4. Infrared Switch
5. Inverter 20/40W. 230 V A.C
6. Up-Controlled Time Switch.
7. Up-Controlled A/D Converter.
8. Up-Controlled Running Light
9. Up-Controlled D/A Converter.
10. Pc Base Switch
11. Up-Controlled Traffic Light
12. Stereo Amplifier
13. Super Heterodyne Radio Receiver
14. F.M. Receiver
15. FM based Remote Switch.
16. Event Counter

R.K.S.D. (P.G) COLLEGE

KAITHAL

SESSION: 2021-22

PROJECT REPORT ON

Traffic Light Control Using Microprocessor

SUBMITTED TO
PROF. Rajesh Singh
HEAD OF ELECT. DEPT.

SUBMITTED BY
Gurmeet
B.SC (Final Year)
ROLL NO- 10005

CERTIFICATE

This is to certify that Mr. Gurmeet of ***B.Sc. Final Year*** has successfully completed the project "*Traffic Light Control Using Microprocessor*" in the partial fulfillment for the award of Bachelor of Science Degree from Kurukshetra University, Kurukshetra during the academic year 2021-2022.

We wish him a happy and bright future with all silvery success.

Rajesh Singh
H.O.D. Electronics Deptt.
R.K.S.D.(P.G.) COLLEGE
Kaithal (Haryana)

ACKNOWLEDGEMENT

Use of electronics is very fastly expending in every walk of life. Hence students of electronics must have practical knowledge about the subject.

It is my pleasure to take this opportunity to thanks all of those who helped me directly or indirectly in this project. I have been allotted "**TRAFFIC LIGHT**" as a project and it has been prepared with knowledge available. I must pay my gratitude and sincere thanks to **Sh.Rajesh Singh** who intended his fully support and guidance to me completing this project. I am also thankful to **Mr. SUNIL GUPTA** for providing us valuable guidance. I am also thankful to them for giving me full co-operation and guidance and also for inspiring me for preparing this project report.

Gurmeet,
B.Sc.Final (Elec.)
Roll No. 10005

INTERDOUCATION

The applications of microprocessor are increasing day by day. There are many applications of microprocessor. One of them is traffic control system. The traffic light is very useful to control the traffic in big cities.

In this project all ports of 8255 have been programmed as output ports. Positive logic has been used to switch on LED's. Three kind of LED's are using. Green glows to allow crossing yellow to made alert, either for crossing or get ready for stop. Red glows to do not allow for crossing.

The important control signals are as follows:

CS(Chip Select): it is chip select signal. The low status of the signal enables communication between CPU and 8255.

RD(READ): when RD goes low the 8255 sends out data or status information to the CPU on the data bus. In other words it allows the CPU to read data from input port of 8255.

WR(WRITE): when WR goes to low the CPU with data or control word in 8255. The CPU write data in output port of 8255 and the control word in the control register.

AO and Al: the selection of input word and control word register is done using AO and Al is connected to least significant bit of the port are as follow.

FOR THE Ist VERSION OF 8255, i.e.8255.1:

Port/Control Register Word	Port/Control Register Address
Port A	**00**
Port B	**01**
Port C	**02**
Control word register	**03**

All the ports of 8255 have been programmed as output ports. The connections of pin of port of LED have been made through buffer. Positive logic has been used to switch on LED's are using. Green glows crossing, yellow to make alert, either for crossing or get ready to stop. Red glows does not allow for crossing.

If we write the instructions in 00, it means the data on port A 8255 is taken as input. When the instructions executed the data are transferred from the port to accumulator. The instruction out 03 will transfer the data of accumulator to the control word register of 8255.1. The instruction IN 00 transfer data from port B of 8255.2. The instruction OUT 03 transfer the data of accumulator to the control word register only out instructions is used. Its content can not be read.

ADDRESS	OP-CODE	MNEMONICS	COMMENTS
2000	3E, 80	MVI A, 80 H	Get control word for 8255
2002	D3, 03	OUT O3	Initialize ports of 8255.1
2004	3E, 02	LOOP MVI A, 02	
2006	D3, 01	OUT 01	RED ON for south
2008	D3, 00	OUT 00	RED ON for north
200A	3E, 48	MVI A, 48	Green ON for east and west

200C	D3, 02	OUT 02	
200E	CD, 00, 25	CALL DELEY 1	
2011	3E, 24	MVI A, 24	Yellow ON for east and west
2013	D3, 02	OUT 02	
2015	CD, 13, 25	CALL DELEY II	
2018	3E, 12	` MVI A, 12	
201A	D3, 02	OUT 02	Red ON for East & West
201C	3E, 08	MVI A, 08	
201E	D3, 00	OUT 00	Green ON for north
2020	D3, 01	OUT 01	Green ON for south
2022	CD, 00, 25	CALL DELAY-I	
2025	3E, 04	MVI A, 04	
2027	D3, 01	OUT 01	Yellow ON for South

ADDRESS	OP-CODE	MNEMONIC	COMMENTES
2029	D3, 00	OUT 00	Yellow ON for North
202B	CD, 13, 25	CALL DELEY II	
202E	C3, 04, 20	JMP LOOP	

PROGRAMME FOR DELAY - I

ADDRESS	OP-CODE	MNEMONIC
2500	06	MVI B, 20 H
2501	20	
2502	0E	MVI C, FF H
2503	FF	
2504	16	MVI D, FF H
2505	FF	
2506	15	DCR D
2507	C2	JNZ, - 2506
2508	06	
2509	25	
250A	0D	DCR C
250B	C2	JNZ, - 2504
250C	04	

250D	25	

ADDRESS	OP-CODE	MNEMONICS
250E	05	DCR B
250F	C2	JNZ - 2502
2510	02	
2511	25	
2512	C9	RET

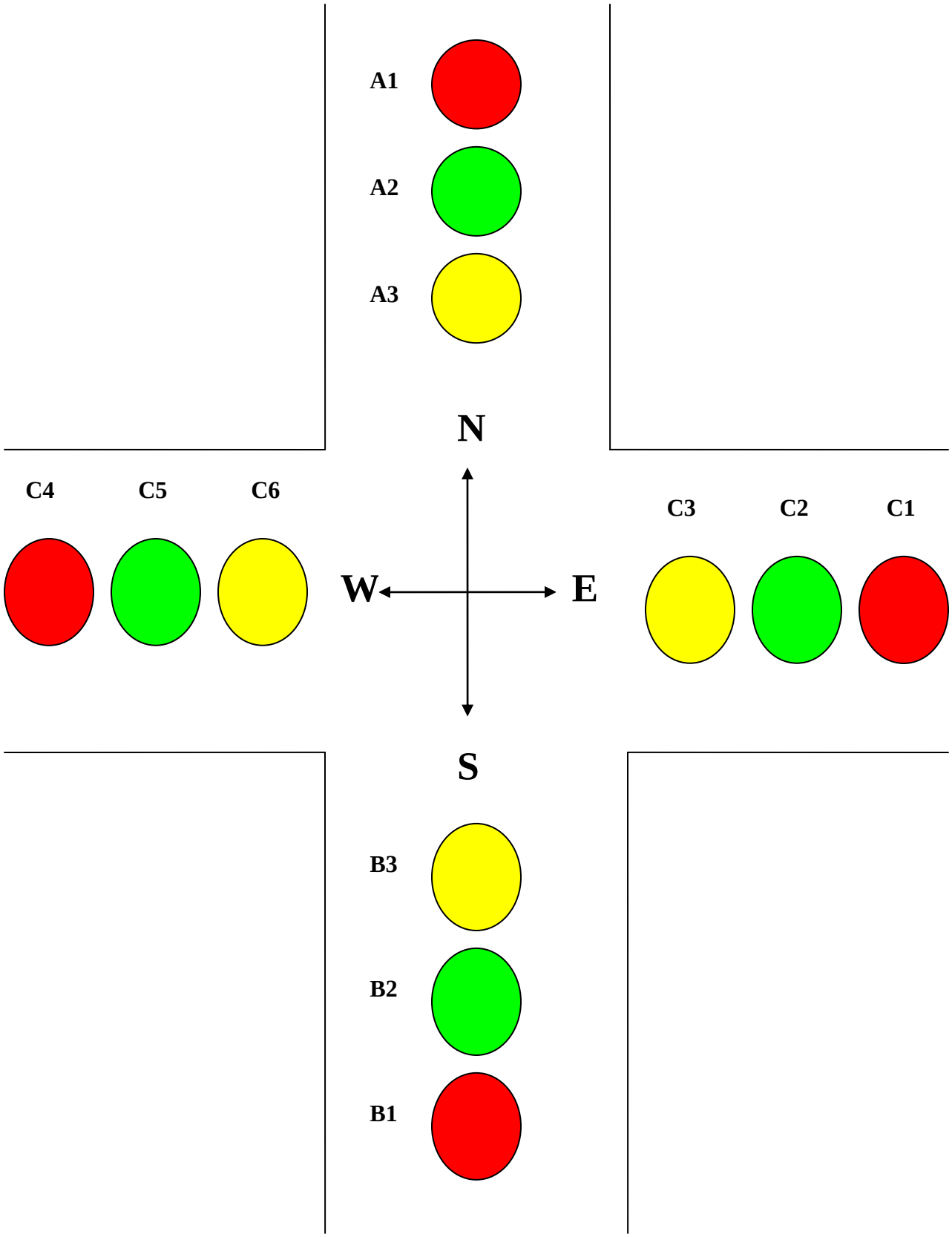
PROGRAMME FOR DELEY - II

ADDRESS	OP-CODE	MNEMONICS
2513	06	MVI B, 10 H
2514	10	
2515	C3	
2516	02	JMP 2502

ADDRESS	OP-CODE	MNEMONICS	COMMENTS
2000	3E, 80	MVI A, 80 H	Get control word for 8255
2002	D3, 03	OUT O3	Initialize ports of 8255.1
2004	3E, 02	LOOP MVI A, 02	
2006	D3, 01	OUT 01	RED ON for south
2008	D3, 00	OUT 00	RED ON for north
200A	3E, 24	MVI A,24	Green ON for east and west
200C	D3, 02	OUT 02	
200E	CD, 00, 25	CALL DELEY 1	
2011	3E, 48	MVI A, 48	Yellow ON for east and west
2013	D3, 02	OUT 02	
2015	CD, 13, 25	CALL DELEY II	
2018	3E, 12	` MVI A, 12	
201A	D3, 02	OUT 02	Red ON for East & West
201C	3E, 04	MVI A, 04	
201E	D3, 00	OUT 00	Green ON for north
2020	D3, 01	OUT 01	Green ON for south

2022	CD, 00, 25	CALL DELAY-I	
2025	3E, 08	MVI A, 08	
2027	D3, 01	OUT 01	Yellow ON for South

ADDRESS	OP-CODE	MNEMONIC	COMMENTES
2029	D3, 00	OUT 00	Yellow ON for North
202B	CD, 13, 25	CALL DELEY II	
202E	C3, 04, 20	JMP LOOP	


A1
A2
A3
N
C4
C5
C6
C3
C2
C1
W
E
S
B3
B2
B1

References:

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2. B.Ram, Microprocessors and Microcontrollers.
3. www.google.co.in