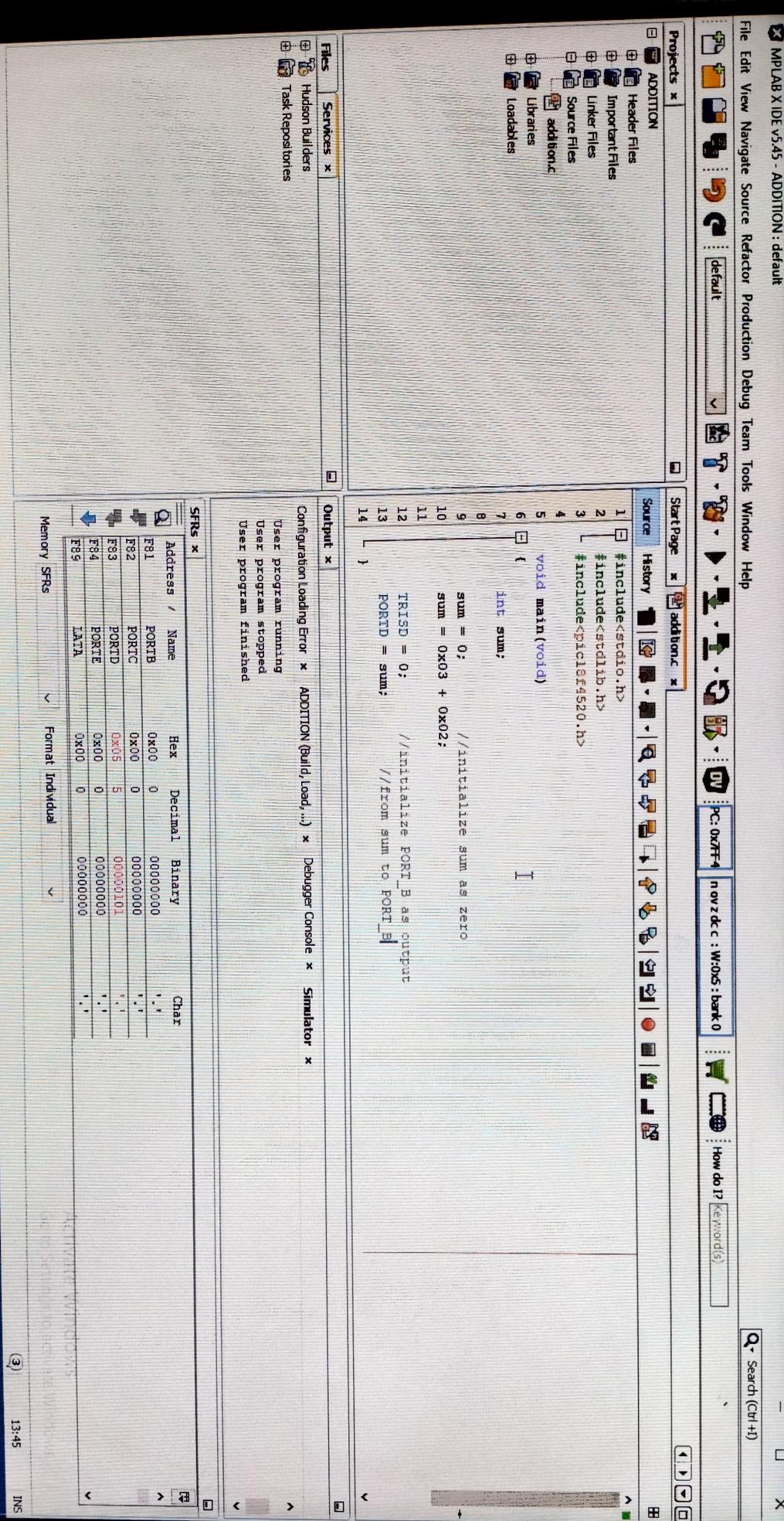


Experiment no

1

ADDITION



69

Tools Window Help



PC: 0x7FF4

novzdcc : W:0x5 : bank 0



Start Page × addition.c ×



```

1  #include<stdio.h>
2  #include<stdlib.h>
3  #include<pic18f4520.h>
4
5  void main(void)
6  {
7      int sum;
8
9      sum = 0;           //initialize sum as zero
10     sum = 0x03 + 0x02;
11
12     TRISE = 0;         //initialize PORT_B as output
13     PORTD = sum;       //from sum to PORT_B
14 }
```



Output ×

Configuration Loading Error × ADDITION (Build, Load, ...) × Debugger Console × Simulator ×

User program running
User program stopped
User program finished

SFRs ×

	Address / Name	Hex	Decimal	Binary	Char
Q	F81 PORTB	0x00	0	00000000	'.'
↓	F82 PORTC	0x00	0	00000000	'.'
↓	F83 PORTD	0x05	5	00000101	'.'
↓	F84 PORTE	0x00	0	00000000	'.'
↓	F89 LATA	0x00	0	00000000	'.'

Memory SFRs

Format Individual



Experiment no

2

**ARRAY OF
ADDITION**

Projects x

- ARRAY
 - Header Files
 - Important Files
 - Linker Files
 - Source Files
 - arrayAddition.c
- Libraries
- Loadables

Start Page x arrayAddition.c x

Source History □ |

```

1 #include <stdio.h>
2 #include <pic18f4520.h>
3
4 void main(void)
5 {
6     int i, sum;
7     int number[] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
9     sum = 0;
10
11     for (i=0; i<=9; i++)
12     {
13         sum+=number[i];
14     }
15     PORTD=sum;
16 }
```

Files x

Hudson Builders Task Repositories

Output x

Configuration Loading Error x ARRAY (Build, Load, ...) x Debugger Console x Simulator x

Launching

Variables	SFRs x
F81 PORTB 0x00 0 00000000 . . .	
F82 PORTC 0x00 0 00000000 . . .	
F83 PORTD 0x37 55 00110111 . . .	
F84 PORTE 0x00 0 00000000 . . .	
F89 LATA 0x00 0 00000000 . . .	

Activate Windows
Goto Settings to activate Windows

Projects x

- ARRAY
 - Header Files
 - Important Files
 - Linker Files
 - Source Files
 - arrayAddition.c
- Libraries
- Loadables

Start Page x arrayAddition.c x

Source History □ |

```

1 #include <stdio.h>
2 #include <pic18f4520.h>
3
4 void main(void)
5 {
6     int i, sum;
7     int number[] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
9     sum = 0;
10
11     for (i=0; i<=9; i++)
12     {
13         sum+=number[i];
14     }
15     PORTD=sum;
16 }
```

Files x

Hudson Builders Task Repositories

Output x

Configuration Loading Error x ARRAY (Build, Load, ...) x Debugger Console x Simulator x

Launching

Variables	SFRs x
F81 PORTB 0x00 0 00000000 . . .	
F82 PORTC 0x00 0 00000000 . . .	
F83 PORTD 0x37 55 00110111 . . .	
F84 PORTE 0x00 0 00000000 . . .	
F89 LATA 0x00 0 00000000 . . .	

Activate Windows
Goto Settings to activate Windows

Memory SFRs Format Individual

ARRAY (Build, Load, ...)

29°C Sunny 29° PM 5/6/2024

7:14 INS

Type here to search

109

Tools Window Help

Start Page arrayAddition.c

Source History

```
1 #include <stdio.h>
2 #include <stdlib.h>
3 #include <pic18f4520.h>
4
5 void main(void)
6 {
7     int i, sum;
8     int number []={1,2,3,4,5,6,7,8,9,10};
9     sum = 0;
10
11     for (i=0;i<=9;i++)
12     {sum=sum+number[i];
13     }
14     TRISD=0;
15     PORTD=sum;
16 }
```

Output

Configuration Loading Error × ARRAY (Build, Load, ...) × Debugger Console × Simulator ×

Launching

Variables SFRs

	Address / Name	Hex	Decimal	Binary	Char
Q	F81 PORTB	0x00	0	00000000	'.'
D	F82 PORTC	0x00	0	00000000	'.'
U	F83 PORTD	0x37	55	00110111	'7'
D	F84 PORTE	0x00	0	00000000	'.'
	F89 LATA	0x00	0	00000000	'.'

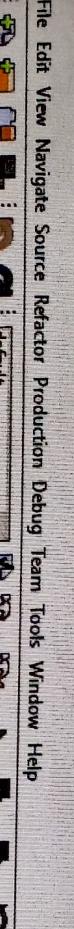
Memory SFRs Format Individual

ARRAY (Build, Load, ...)

Experiment no

3

**MULTIPLY
AND
DIVIDE**



default

PC: 0x7FFA

n ovzdc.c : W:0x3:bank 0

How do I?

Keyword(s)

Search (Ctrl + I)

Projects

MULTIPLYandDIVIDE

Multiplication

Source

History

File

Edit

View

Navigate

Source

Refactor

Production

Debug

Team

Tools

Window

Help

- MULTIPLYandDIVIDE
- Header Files
- Important Files
- Linker Files
- Source Files
- Libraries
- Multiplication.c**
- Loadables

- MULTIPLYandDIVIDE
- Header Files
- Important Files
- Linker Files
- Source Files
- Libraries
- Multiplication.c**
- Loadables

Files

Services

Source

History

File

Edit

View

Navigate

Source

Refactor

Production

Debug

Team

Tools

Window

Help

```

1 1 #include <stdio.h>
2 2 #include <btclib.h>
3 3 #include <pic18f4520.h>
4 4
5 5 void main(void)
6 6 {
7 7     int MUL, DIV;
8 8     MUL = 0;
9 9     DIV = 0;
10 10
11 11     MUL = 0x04 * 0x01;
12 12     DIV = 0x06 / 0x02;
13 13
14 14     TRISD = 0;
15 15     PORTC = MUL;
16 16
17 17     TRISD = 0;
18 18     PORTD = DIV;
19 19
20 20 }
```

SRs					
Address	Name	Hex	Decimal	Binary	Char
F81	PORTB	0x10	0	00000000	' '
F82	PORTC	0x04	4	00000100	'0'
F83	PORTD	0x03	3	00000011	'1'
F84	PORTE	0x00	0	00000000	' '
F89	LATA	0x00	0	00000000	' '

SRs					
Address	Name	Hex	Decimal	Binary	Char
F81	PORTB	0x10	0	00000000	' '
F82	PORTC	0x04	4	00000100	'0'
F83	PORTD	0x03	3	00000011	'1'
F84	PORTE	0x00	0	00000000	' '
F89	LATA	0x00	0	00000000	' '

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format	Individual				
(3)	18:1	1MS			

Memory SRs					
Format					

Tools Window Help



MultiplyDivide.c x

Source History

```
1  #include <stdio.h>
2  #include <stdlib.h>
3  #include <pic18f4520.h>
4
5  void main(void)
6  {
7      int MUL, DIV;
8      MUL = 0;
9      DIV = 0;
10
11     MUL = 0x04 * 0x01;
12     DIV = 0x06 / 0x02;
13
14     TRISC = 0;
15     PORTC = MUL;
16
17     TRISD = 0;
18     PORTD = DIV;
19 }
20
```

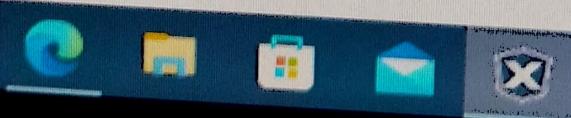
SFRs x

Address	Name	Hex	Decimal	Binary	Char
F81	PORTB	0x00	0	00000000	'.'
F82	PORTC	0x04	4	00000100	'.'
F83	PORTD	0x03	3	00000011	'.'
F84	PORTE	0x00	0	00000000	'.'
F89	LATA	0x00	0	00000000	'.'

Memory SFRs



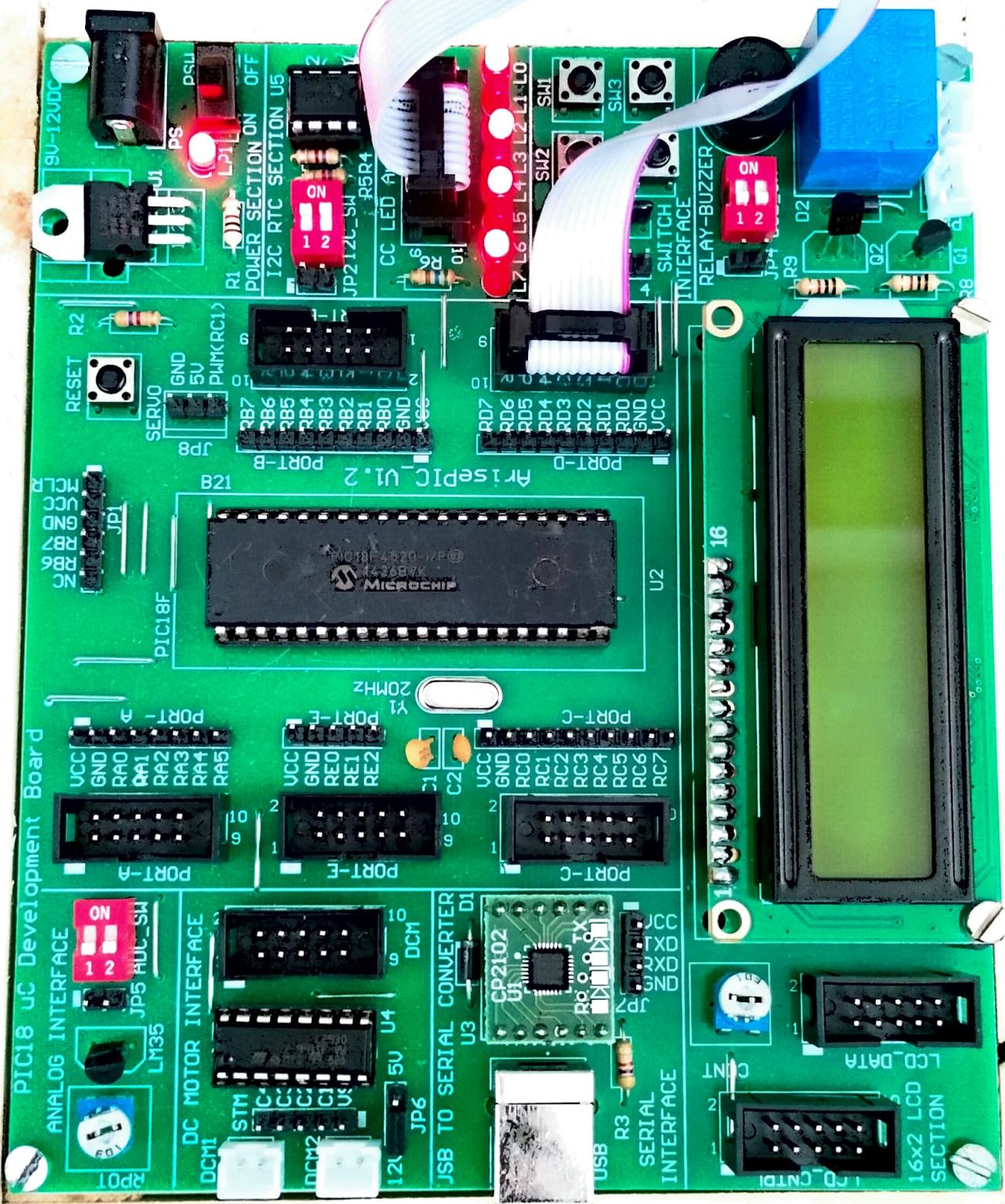
Format Individual

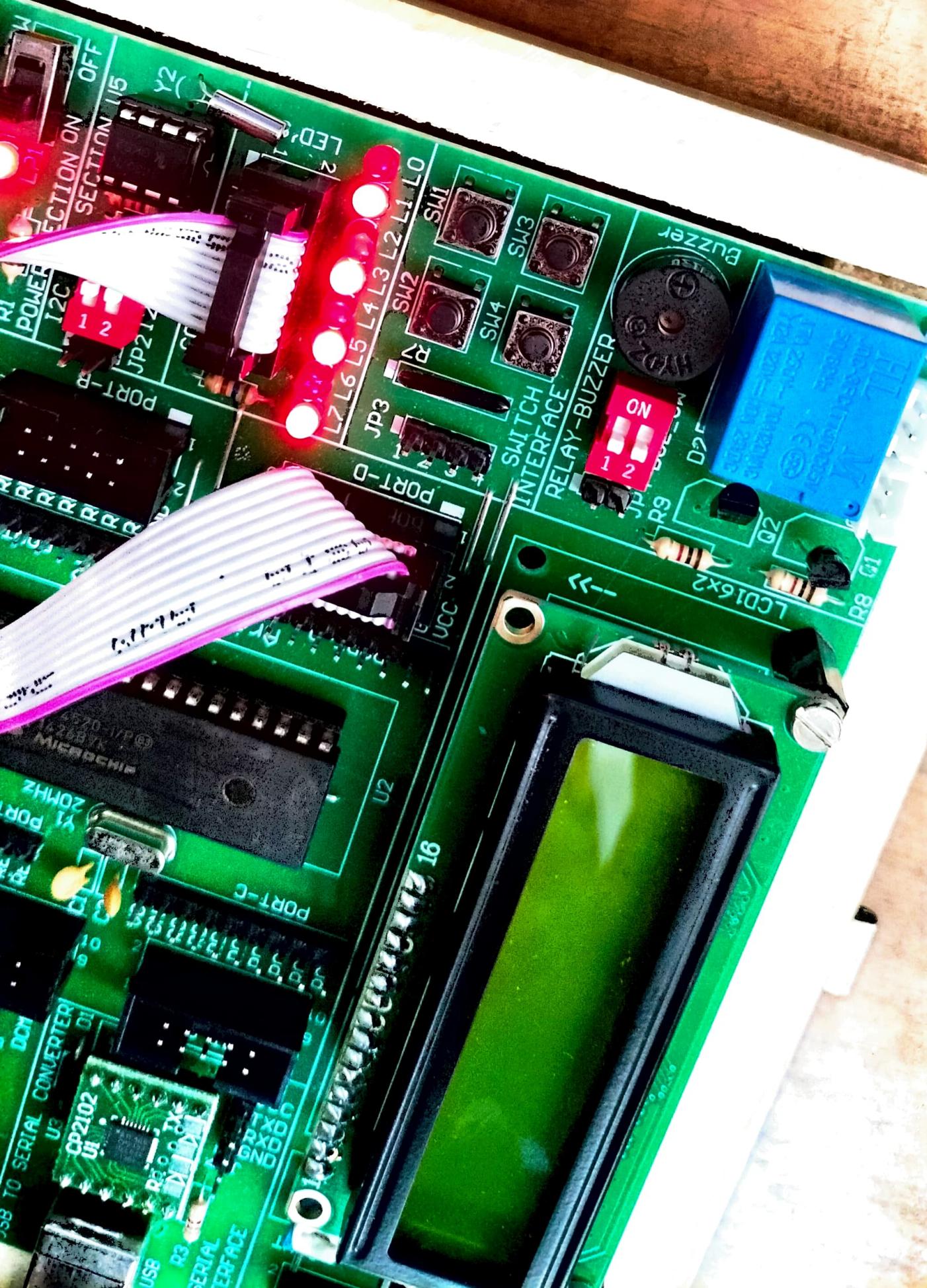


Experiment no

4

LED BLINKING





GSM COE | IT | PL | 09

n... S190308545... paras

Tiny Multi Bootloader+ (v0.11.2.11)

Selected File: C:/Users/student/MPLABXProjects/LED_Blink.X/dist/default/production/LED_

Write Device

Messages Configuration Firmwares Debug About

Check Device

Auto Conf COM

Abort

Comm
Baud Rate:
115200

Selected COM:
COM3

Search COM

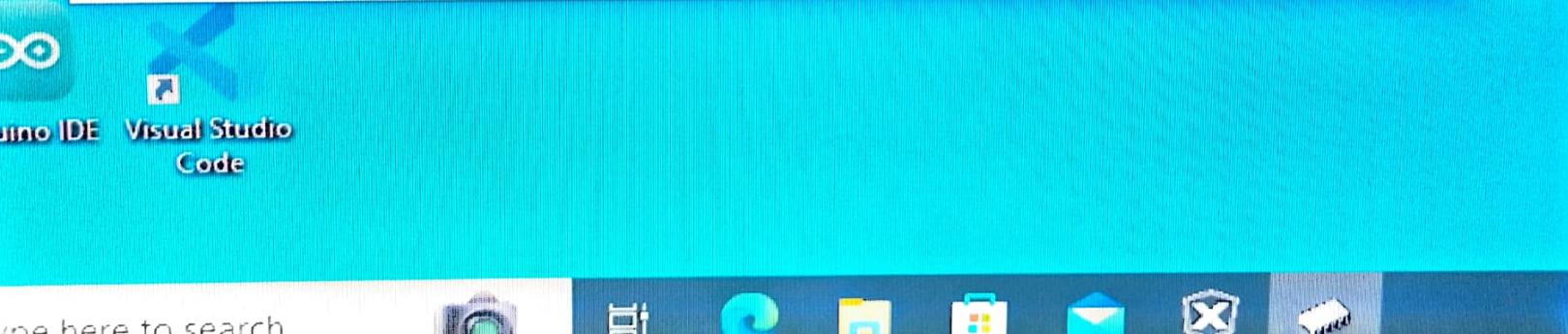
Detected COM:
COM1
COM3

Open COM3 serial port at 115200 Baud Rate
Hardware DTR resetting device
Device detected: '18F 252/452/2520/4520'
Closed COM3 serial port
TinyBootLoader+ device check completed

Checking device
Open COM3 serial port at 115200 Baud Rate
Hardware DTR resetting device
Device detected: '18F 252/452/2520/4520'
Source HEX file opened:
C:/Users/student/MPLABXProjects/LED_Blink.X/dist/default/pr
oduction/LED_Blink.X.production.hex
Warning: User ID bytes found, just writing data
Uploading flash
Uploading program memory
Upload was successful
Closed COM3 serial port
TinyBootLoader+ completed

Transfer options: Check Hex File | Write Flash Program | Write EEPROM | Erase EEPROM

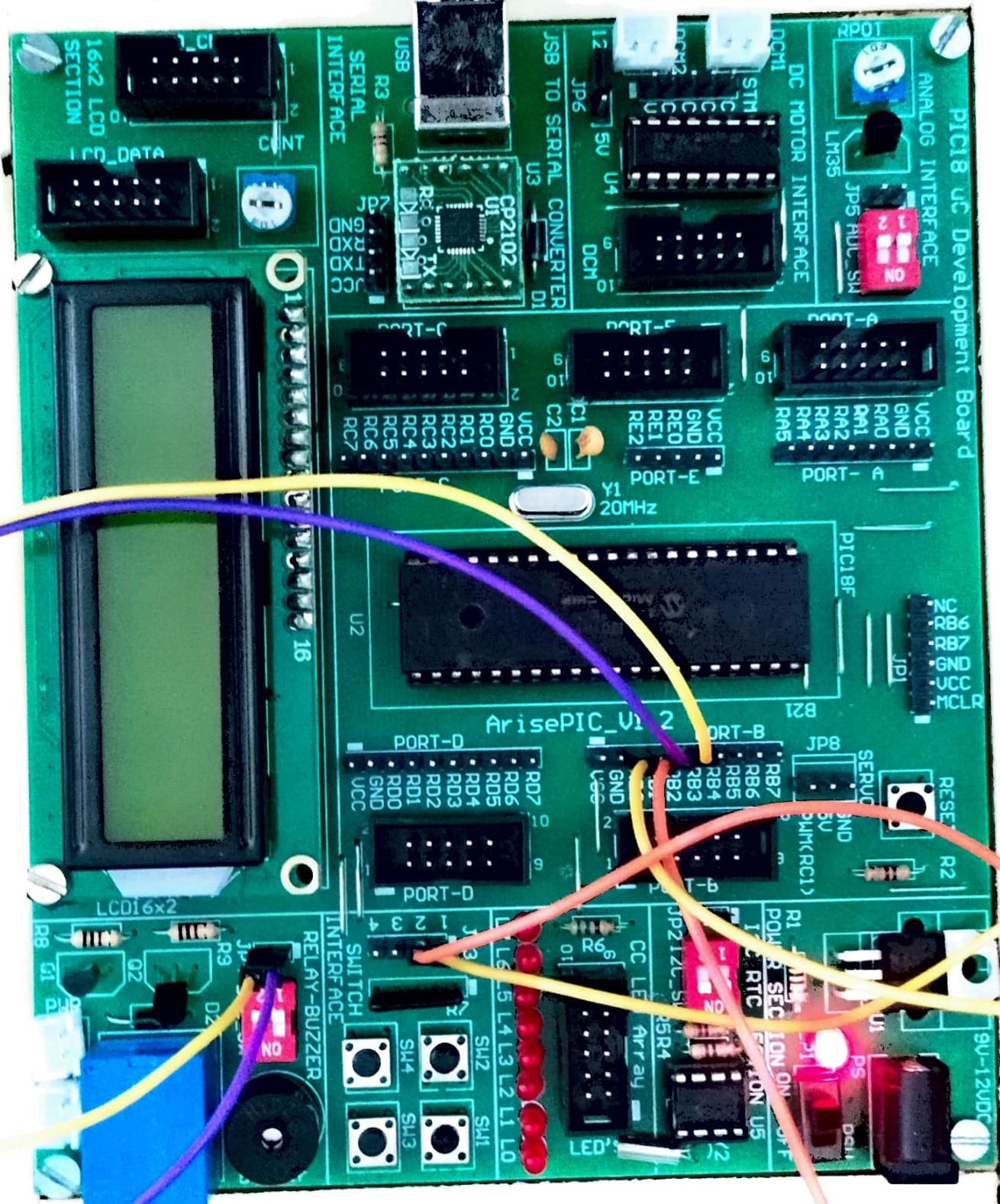
Show Help Tips [Online support](#) [Online Doc](#)

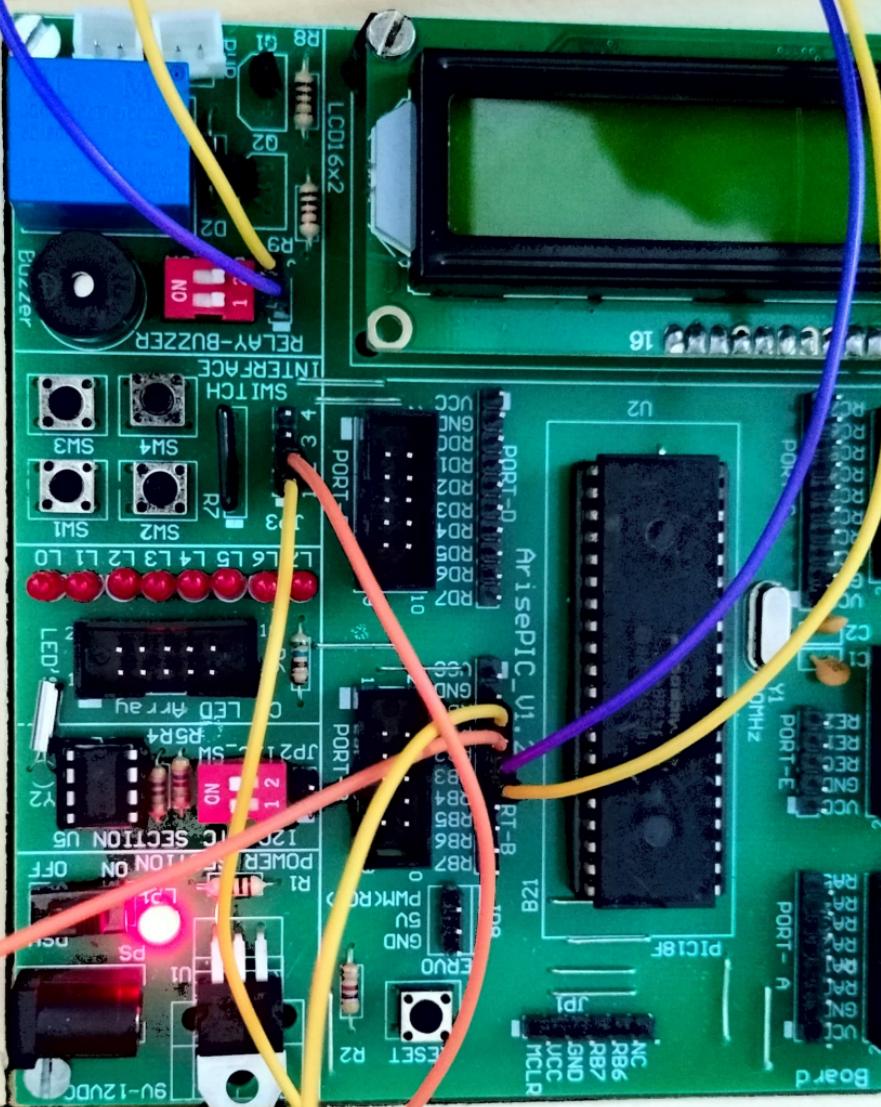


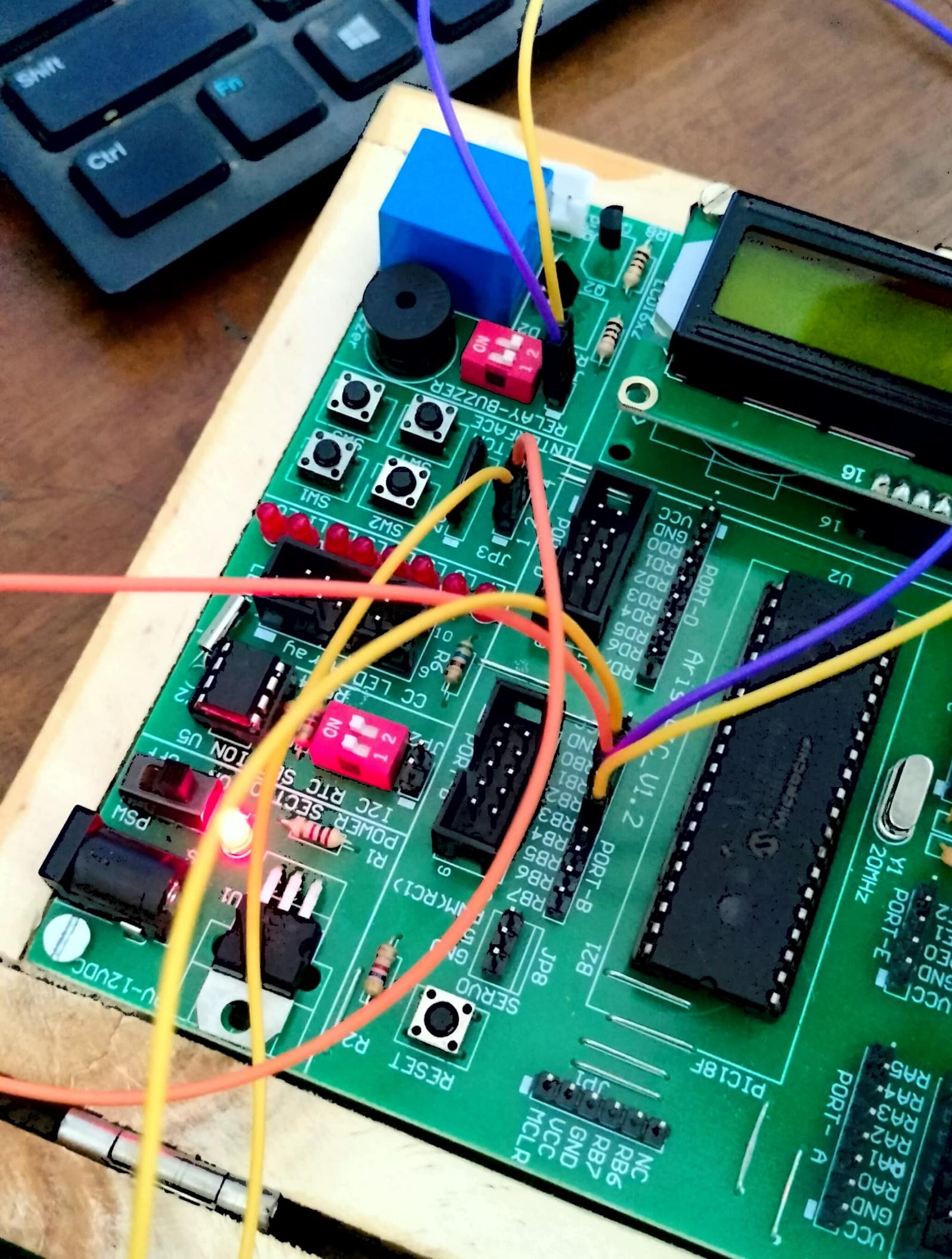
Experiment no

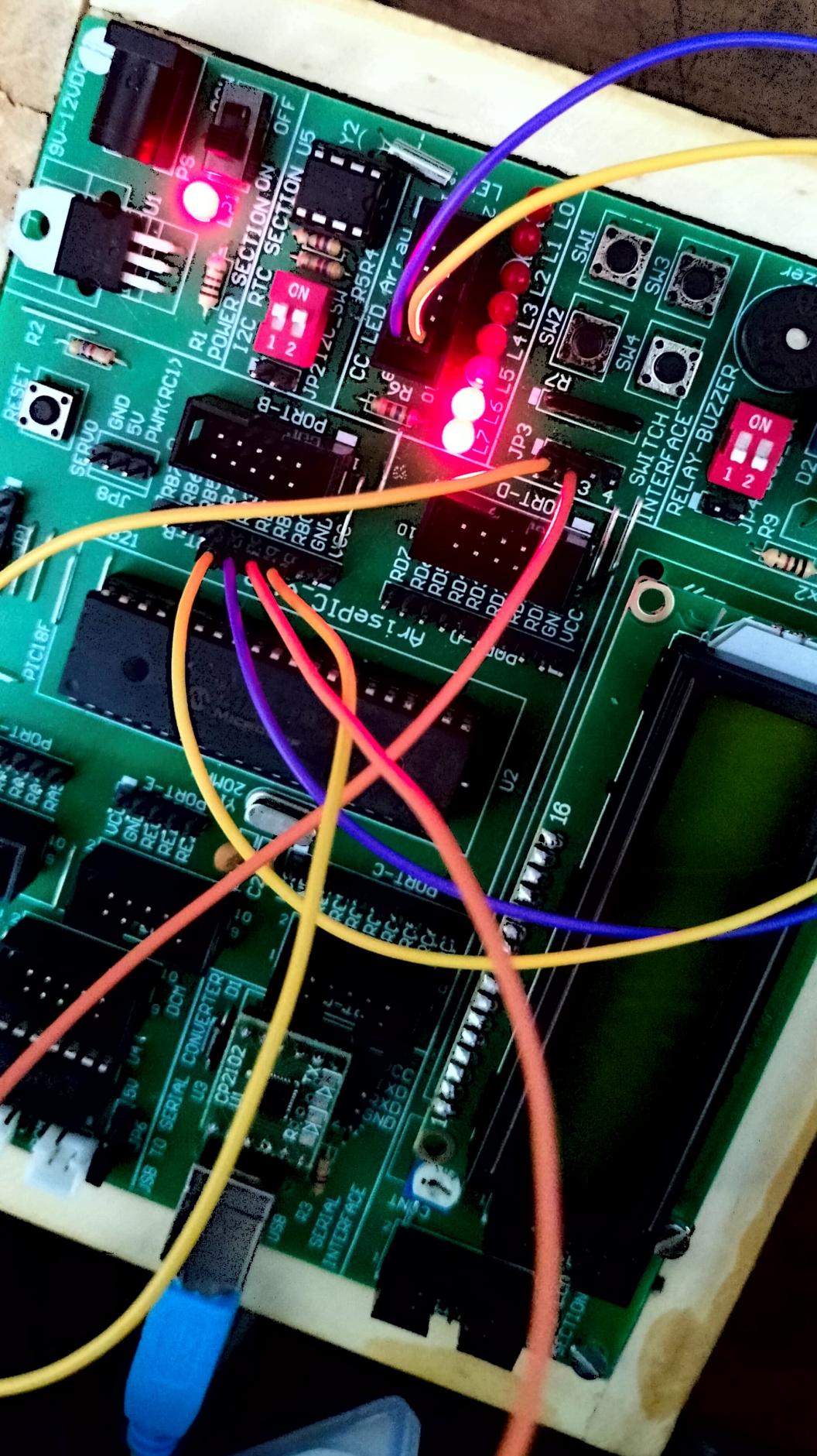
5

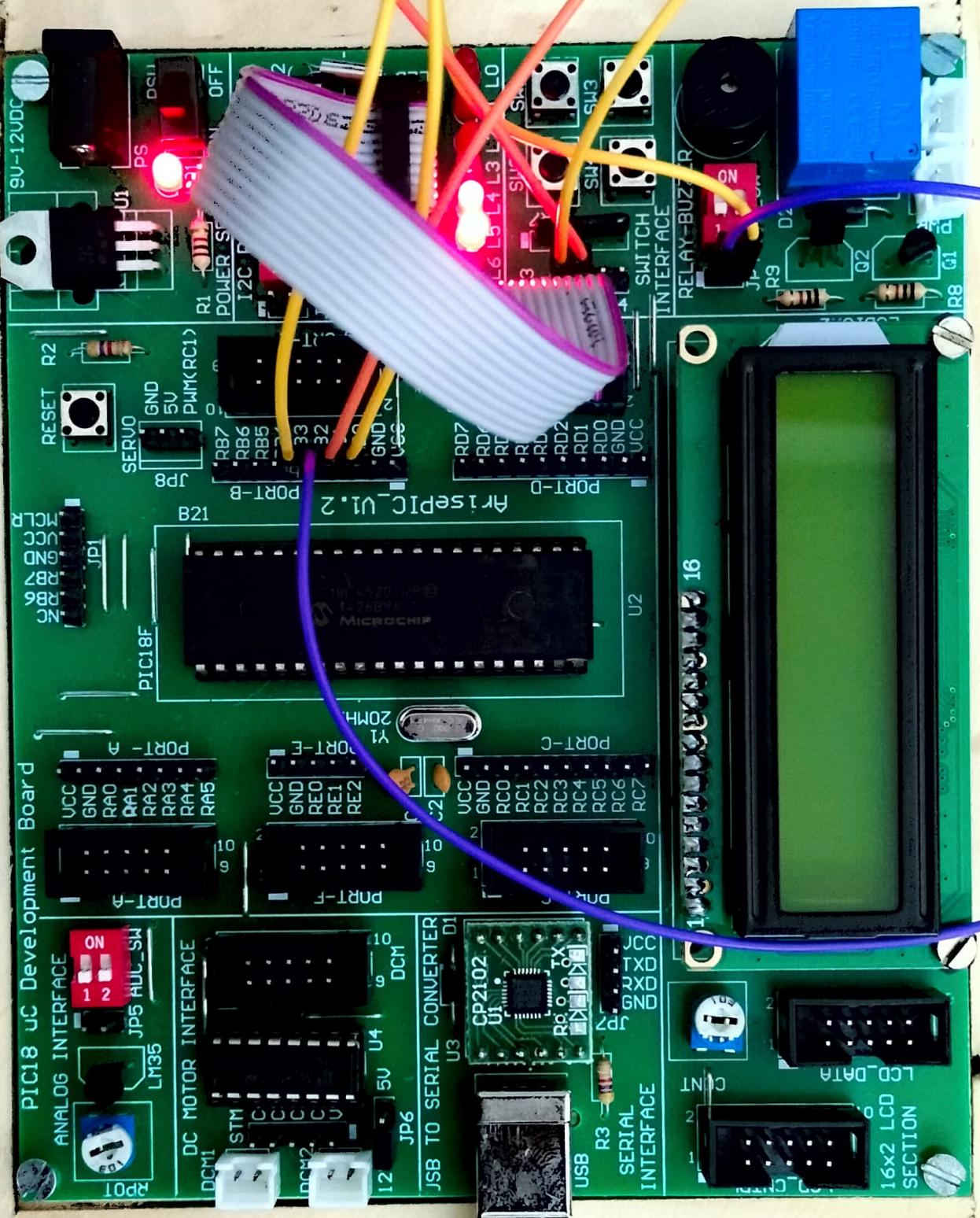
BUZZER

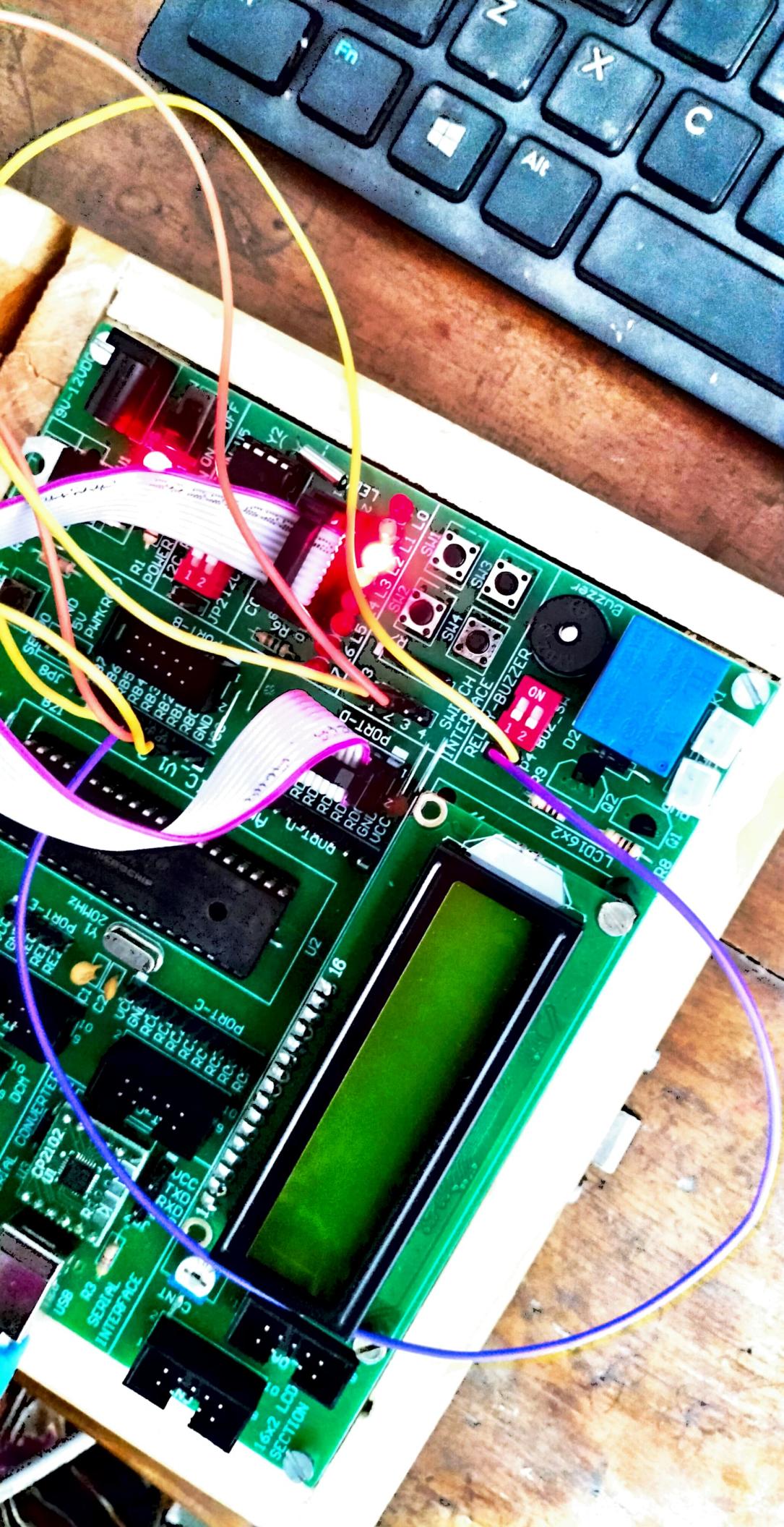








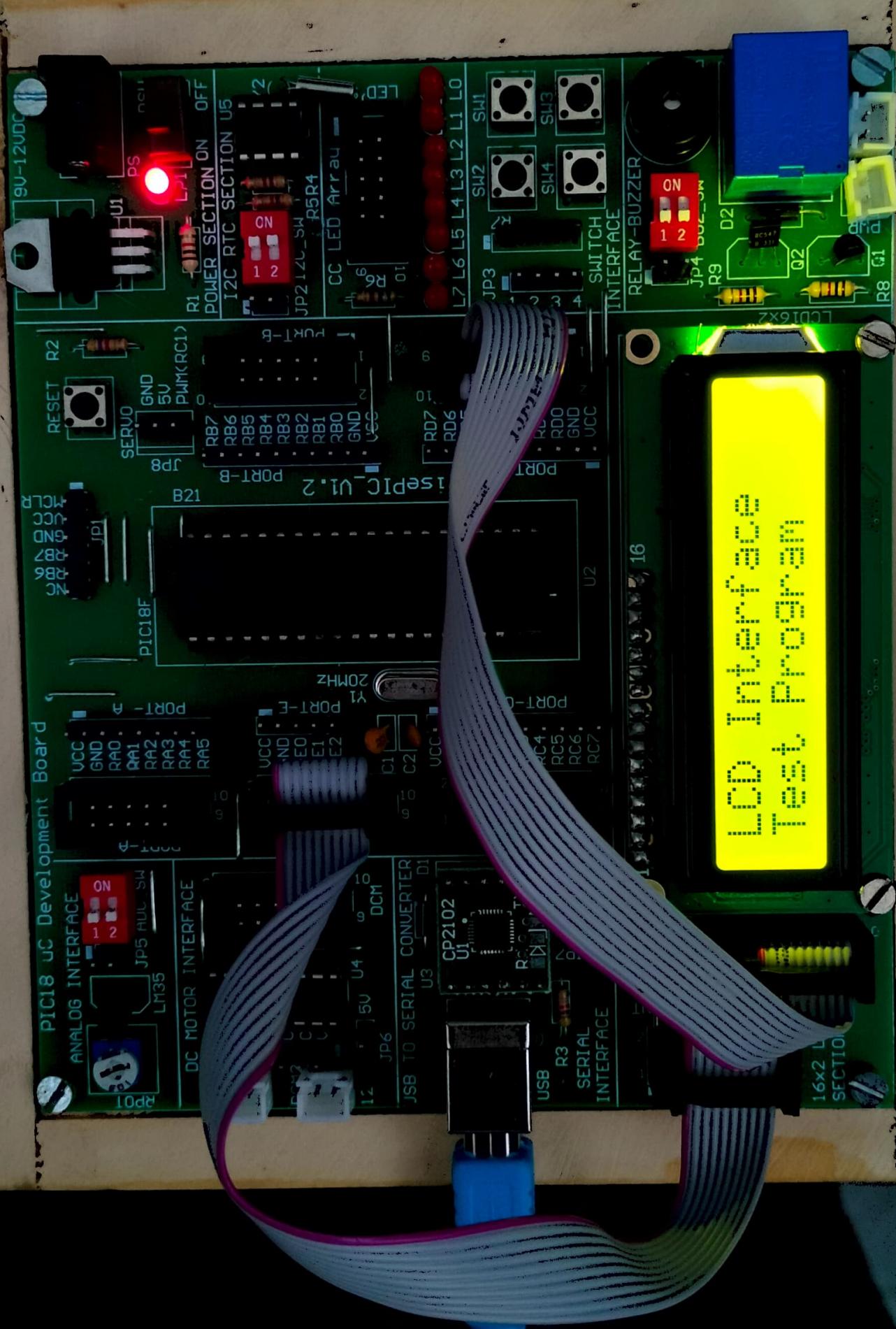


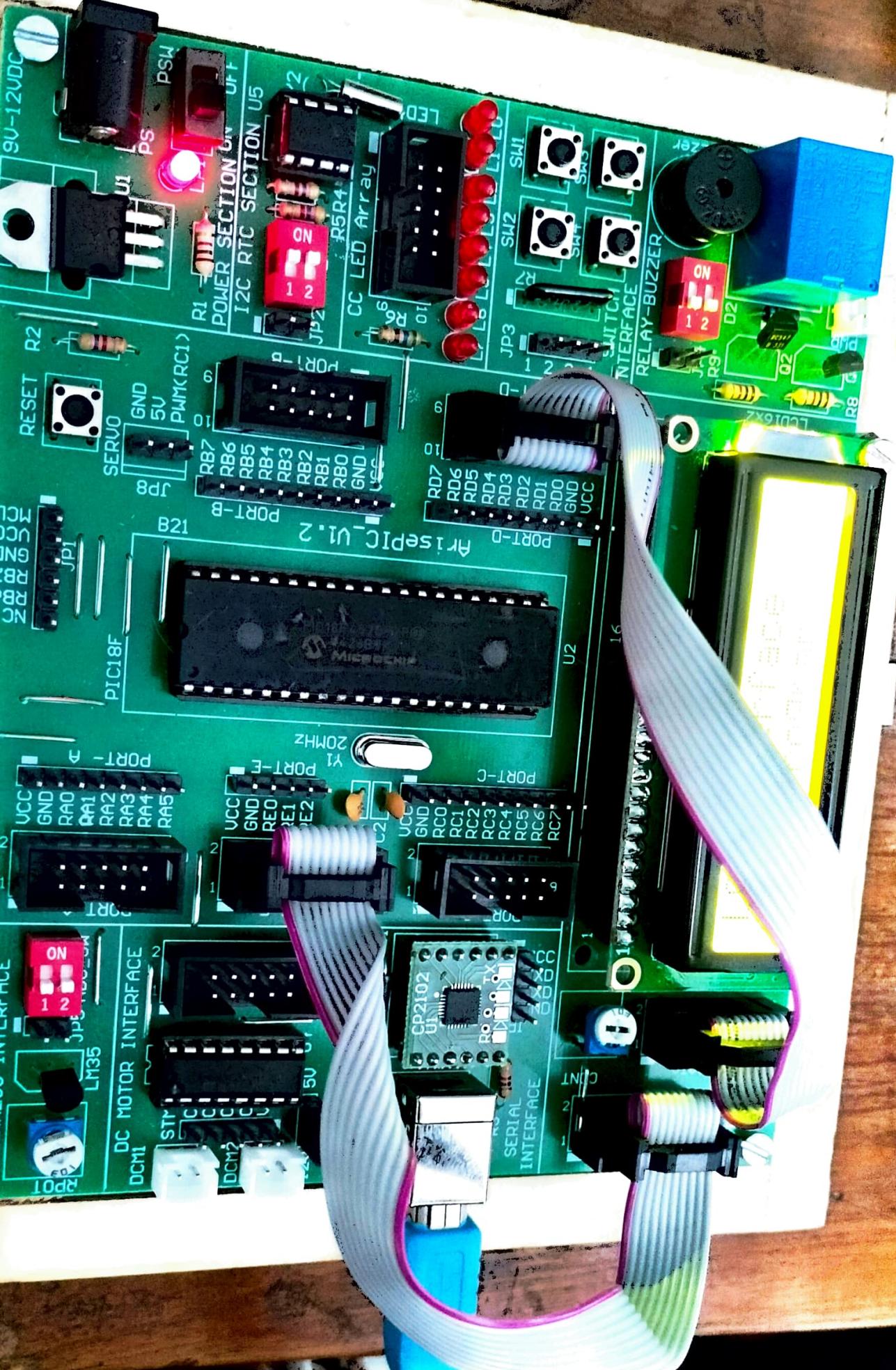


Experiment no

6

**LCD
INTERFACE**

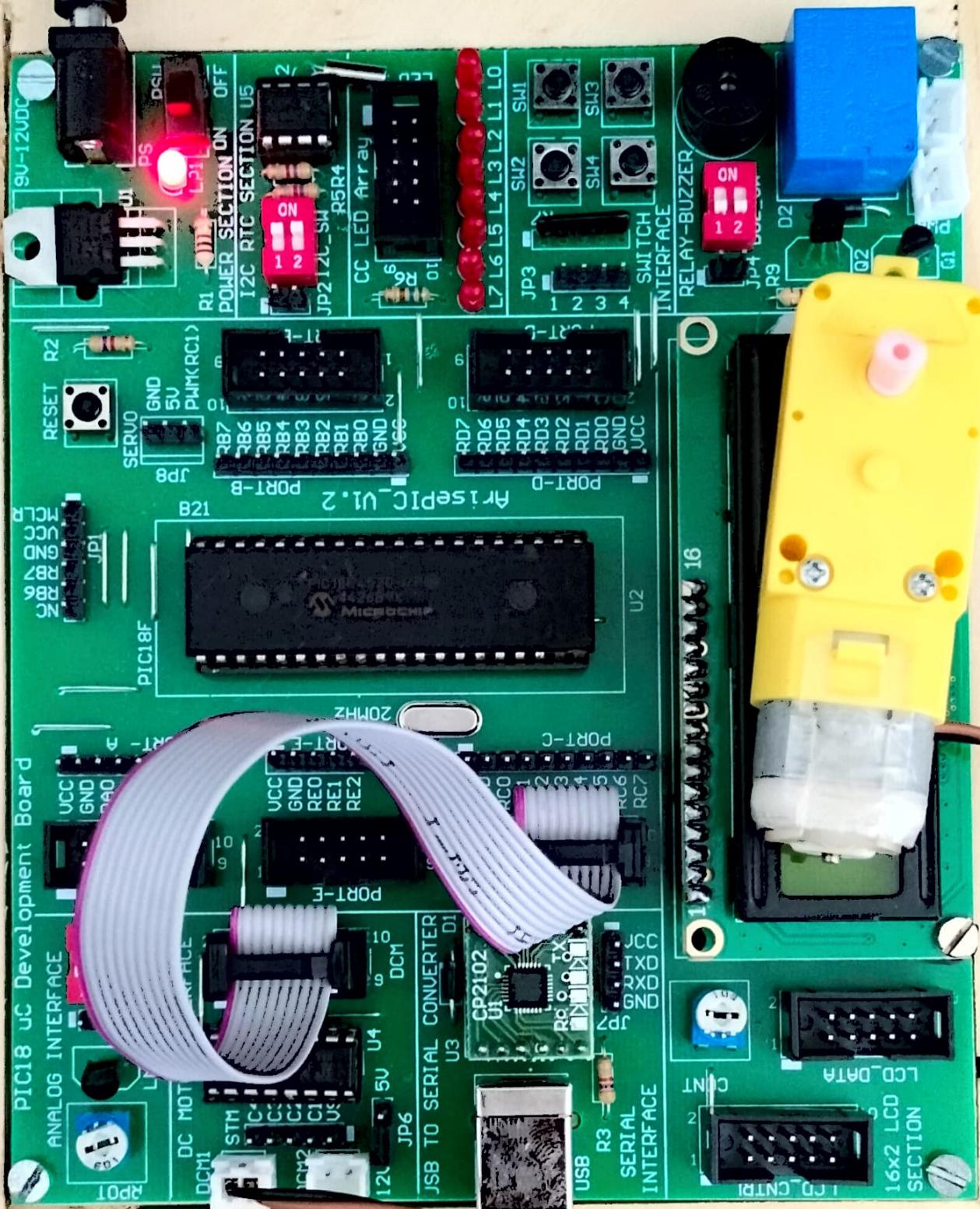


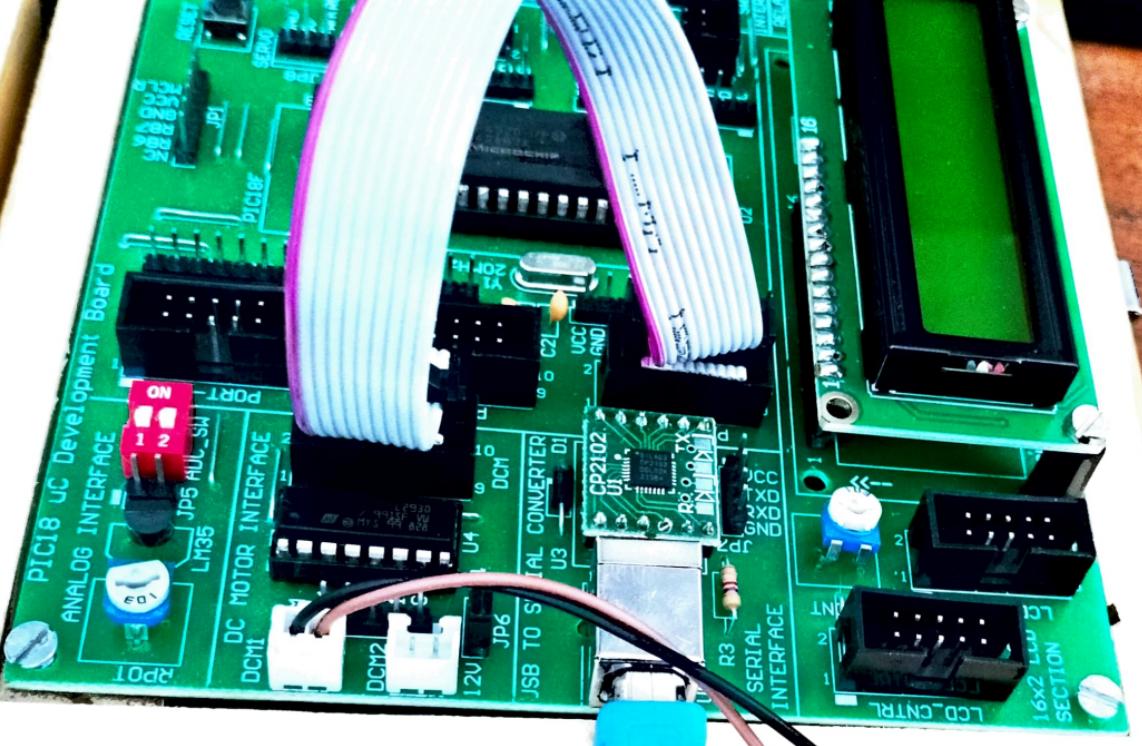


Experiment no

7

DC MOTOR



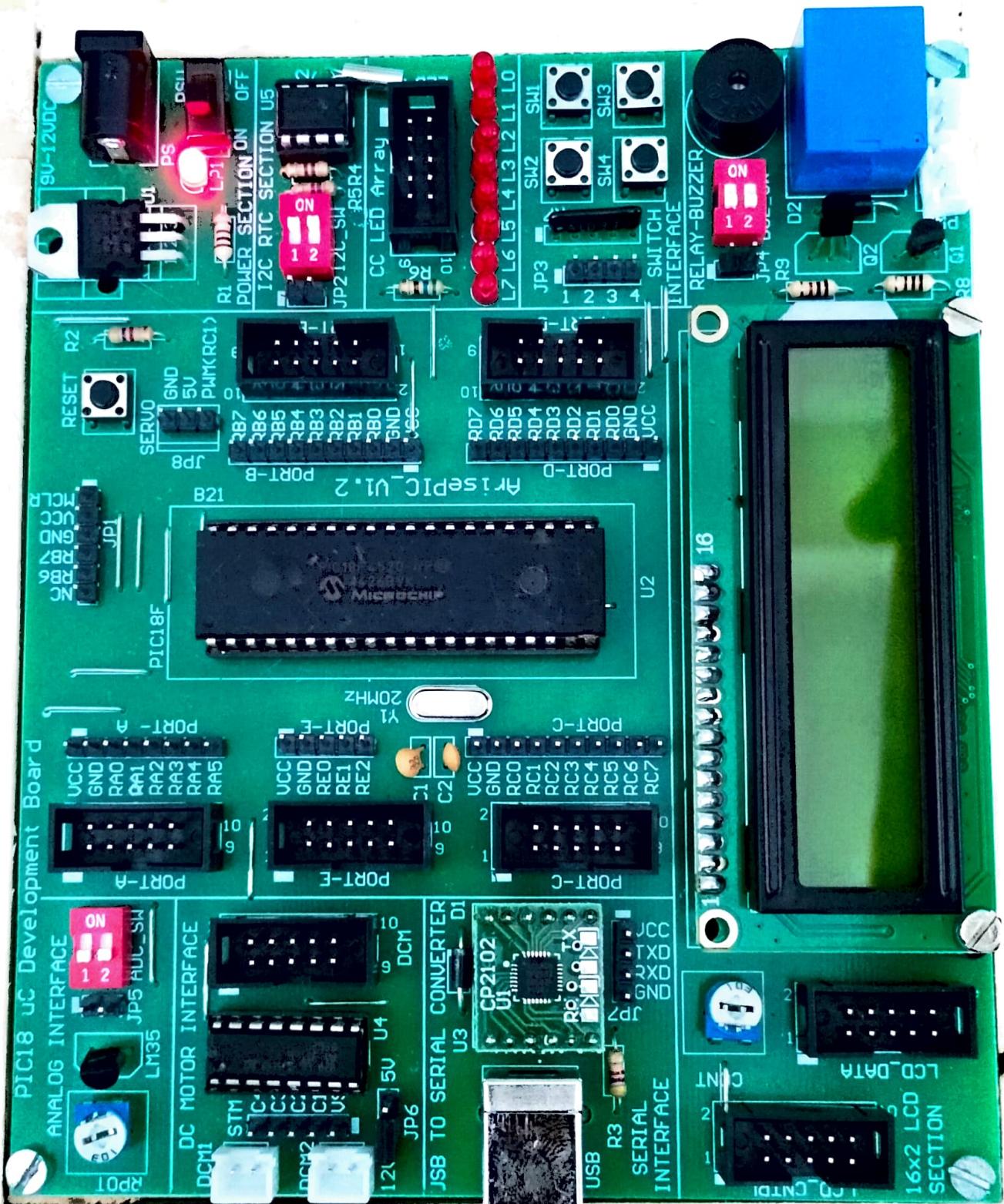


Experiment no

8

SERIAL

Communication



GSM WEI IT IPU 09

Terminal v1.9b - 2011/23/08 - by Bi@y+

Disconnect	COM Port	BAUD rate	Data bits	Parity	Stop bits	Handshaking
Rescan	COM3	600	14400	57600	5	none
Help		1200	19200	115200	odd	C 1
About		2400	28800	128000	6	RTSCTS
Quit	COMs	38400	256000	7	even	XON/XOFF
		9600	56000	8	mark	RTSCTS+XON/XOFF
					2	RTS on TX
						RTS on RX
						invert

Settings

Session Auto Disconnect Time Stream log Session BR Rx Clear
AutoStart Script CR/LF Stay On Top 9600 -1 Graph ASCII Table

Receive CLEAR Reset Counter [13] Counter = 7 HEX ASCII DEC BIN SIGNATURE DISPLAY REQUEST/RESPONSE

PC Communication
On-chip USART Test Code
Send 10 character to UC

Transmitted Characters are: zeenataman
Rx Tx test complete

Transmit	CLEAR	Send File	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[A]	[B]	[C]	[D]	[E]	[F]	BREAK						
Macos																									
Set Macros																									
	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	
	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24													

zeenataman

Connected

Rx 132

Tx 10

Rx OK



Type here to search



10:16 PM

30°C Sunny

5/6/2024



GSM COE IITIPL 09

Terminal v1.9b - 20111230B - by Br@y++

Disconnect	COM Port	Baud rate	Data bits	Parity
ReScan	COM3	600	5	no
Help		1200	6	odd
About..	COMs	2400	7	even
Quit		4800	8	mark
		9600	custom	space

Settings

Set font	<input type="checkbox"/> Auto Dis/Connect	<input type="checkbox"/> Time	<input type="checkbox"/> Stream log	custom BR	Rx Clear	AS
	<input type="checkbox"/> AutoStart Script	<input type="checkbox"/> CR=LF	<input type="checkbox"/> Stay on Top	9600	-1	

Receive

CLEAR	Reset Counter	13	Counter = 7	<input type="checkbox"/> HEX	<input type="checkbox"/> Dec	<input type="checkbox"/> Bin
				<input checked="" type="checkbox"/> ASCII	<input type="checkbox"/> Hex	

PC Communication

On-chip USART Test Code
Send 10 character to uC

Transmitted Characters are:zeenataman
Rx Tx test complete

Transmit

CLEAR	Send File	0	<input type="checkbox"/> CR=CR+LF	BREAK
-------	-----------	---	-----------------------------------	-------

Macros

Set Macros	M1	M2	M3	M4	M5	M6	M7	M8
	M13	M14	M15	M16	M17	M18	M19	M20

zeenataman

zeenataman

Connected

Rx: 132

Tx: 10

Rx OK

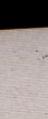
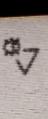
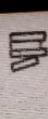
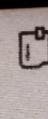
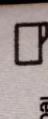


Type here to search



Experiment no 10

**LED + SWITCH
(Arduino Uno)**



Output

Sketch uses 976 bytes (3%) of program storage space. Maximum is 32256 bytes.
 Global variables use 9 bytes (0%) of dynamic memory, leaving 2039 bytes for local

Auto Format

Archive Sketch

Manage Libraries...

Serial Monitor

Serial Plotter

WiFi101 / WiFiNINA Firmware Updater

Upload SSL Root Certificates

Board: "Arduino Uno"

Port: "COM4"

Get Board Info

Programmer

Burn Bootloader

pinMode(ledPin, OUTPUT);

pinMode(ledPin4, OUTPUT);

/*

pinMode(10, INPUT);

Output

Ctrl+T
Ctrl+Shift+I
Ctrl+Shift+M

according to your setup

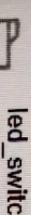
Arduino Yun
Arduino Uno
Arduino Uno MiniArduino Nano
Arduino Mega or Mega 2560
Arduino Mega ADK
Arduino Leonardo
Arduino Micro
Arduino Leonardo ETH
Arduino Explora
Arduino Mini
Arduino Ethernet
Arduino Fio
Arduino BT
LilyPad Arduino USB
LilyPad Arduino
Arduino Pro or Pro Mini
Arduino NG or older
Arduino Robot Control
Arduino Robot Motor
Arduino Gemma
Adafruit Circuit Playground
Arduino Yun Mini

File Edit Sketch Tools Help



Auto Format

Ctrl+T



Archive Sketch

Ctrl+Shift+H



Manage Libraries...

Ctrl+Shift+M



Serial Monitor

according to your setup



Serial Plotter



WiFi101 / WiFiNINA Firmware Updater
Upload SSL Root Certificates



Board: "Arduino Uno"
Port: "COM4"

or blinking



Get Board Info

Serial ports



Programmer

COM1



Burn Bootloader

COM1



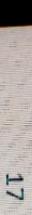
pinMode(ledPin3, OUTPUT);
pinMode(ledPin4, OUTPUT);

or blinking



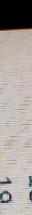
setup();

Serial ports



main() {

Serial ports



/*

Serial ports

Output

Sketch uses 976 bytes (3%) of program storage space. Maximum is 32256 bytes.
Global variables use 9 bytes (0%) of dynamic memory, leaving 2639 bytes for local variables. Maximum is 2048 bytes.

