**Microprocessor and Computer Architecture (MPCA) Laboratory  
UE20CS252 4th Semester,  
Academic Year 2021-22**

**Week 6**

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| **Vanshika Goel** | **PES1UG20CS484** | **H Section** |

1. Display hexadecimal digits [0–9, A–F] on the 7 segment display.

.DATA

ZERO: .BYTE 0b11101101

ONE: .BYTE 0b01100000

TWO: .BYTE 0b11001110

THREE: .BYTE 0b11101010

FOUR: .BYTE 0b01100011

FIVE: .BYTE 0b10101011

SIX: .BYTE 0b10101111

SEVEN: .BYTE 0b11100000

EIGHT: .BYTE 0b11101111

NINE: .BYTE 0b11101011

A: .BYTE 0b11100111

B: .BYTE 0b11101111

C: .BYTE 0b10001101

D: .BYTE 0b11101101

E: .BYTE 0b10001111

F: .BYTE 0b10000111

.TEXT

MOV R0,#0

ALWAYS:

SWI 0x202

CMP R0,#1

BEQ FORWARD

CMP R0,#2

BEQ BACKWARD

B ALWAYS

FORWARD:

MOV R3,#16

MOV R2,#1

LDR R1,=ZERO

LOOP1:

LDRB R0,[R1]

SWI 0x200

BL DELAY

ADD R1,R1,R2

SUB R3,R3,#1

CMP R3,#0

BNE LOOP1

B ALWAYS

BACKWARD:

MOV R3,#16

MOV R2,#-1

LDR R1,=F

LOOP2:

LDRB R0,[R1]

SWI 0x200

BL DELAY

ADD R1,R1,R2

SUB R3,R3,#1

CMP R3,#0

BNE LOOP2

B ALWAYS

DELAY:

MOV R4,#8000

DELAYCOUNT:

SUB R4,R4,#1

CMP r4,#0

BGE DELAYCOUNT

MOV PC,LR

Graphical user interface, text, application, email

Description automatically generated

1. Move a string from LEFT to RIGHT on the LCD display panel.

.DATA

STR: .ASCIZ "Hello World!"

COUNT: .WORD 1500

.TEXT

MOV R0,#30

MOV R1,#7

MOV R7,#0

LDR R8,=COUNT

LDR R8,[R8]

LDR R2,=STR

LOOP:

SWI 0x204

BL DELAY

CMP R0,#0

SUBNE R0,R0,#1

SWIEQ 0x011

B LOOP

DELAY:

CMP R7,R8

ADDNE R7,R7,#1

BNE DELAY

SWI 0x206

MOV R7,#0

MOV PC,LR

Graphical user interface, text, application, email

Description automatically generated