EXPERIMENT-9

HARDWARE INTERFACING - STEPPER MOTOR

Aim: To Interface a stepper motor to 8086 Microprocessor through 8255 Programmable Peripheral Interface (PPI).

Equipment's:

- PC with Linux operating system Loaded
- 8255 Interfacing card (PCI Card)
- Stepper Motor Driver board
- Stepper Motor

Video recording of demonstration:

[lab9-aim_op_2021A7PS0136U.mp4]

Assembly language program to rotate the Stepper Motor:

```
2021 A7 P SO 136U - K. Yakhwandh

'MODEL SMALL

, Ktack 300h

, Data

CREDU 0C 262 H

PA EBU 0C 260 H

PB EBU 0C 261 H

PC EBU 0C 262 H

Note 1 DB 'DEMO Fal Steppen motor', 12,10, '$'

Mog 2 DR 13,10, 'Running', 13,10, '$'
```

```
· Cosle
start:
MOV AX, @ DATA
mov DS, Ax
 MOV AH, 9H
 MOU OX, OFFSET MIG 2
HIE TOIL
mov AH, 9h
mov Ox, OFFSET mig 2
INT 21 h
mov DX, CR
MOV AL, 80h
OUT DX, AL
MOV BL, 50
begin: MOV AL, 11h
call out - A
call delay
mov AL, 22h
cal out- A
call delay
MOV AL, 44h
cal out - A
call delay
```

2021A7PS0136U__K.YASHWANTH__Lab9

```
MOV AL, 884
call out - A
 call delay
 slee B1
 JNZ Begin
MOV AH, ACH
1NT 21 H
 out-A: mov bx, PA
out DX, AL
 RET
Delay: MOV CX, OFFFn
D2: MON AX OSFFAH
 DI! DEC AX
 JNC DI
 DEC CX
 JNZ DZ
 RET
END START
```

Assignment problems:

Assembly language program and video recording to rotate the Stepper Motor in reverse direction:

Video recording of assignment circuit simulation:

[lab9-asgn1_op_2021A7PS0136U.mp4]

```
2021 A7 P SO136U - X. Yashwarth
· MODEL SMALL
, stack rook
, Data
CREDU OC 263 H
 PA EBU OC 200 H
 PB EBU OCZEIH
 PC EBU OC262H
 muso 1 DB ' DEMO Fal steppe motor, 12,10, $1
 Mag 2 DR 13,10, "Running", 13,10, '$"
· Casle
start:
MOV AX, @DATA
 mov
      DS, AX
     AH, 9H
 mov
 MOV OX, OFFS &T MUST
 INT 21 H
mov AH, 9H
MOV DX, OFFSET MIG 2
INT 21 h
MOU DX, CR
MOV AL, goh
OUT DX, AL
MOV BL,50
begin: MOV AL, 88 h
call out - A
call delay as
mov AL, sh
cal out- A
call delay
MOV AL, Ah
call out - A
call delay
```

2021A7PS0136U__K.YASHWANTH__Lab9

```
MOV AL, 114
call out - A
call delay
elee B1
JNZ Begin
MOV AH, 4CH
1NT 21 H
out-A: mov Dx, PA
out DX, AL
 RET
Delay: MOV CX, OFFFh
Dz: MOV AX OSFF H
DI! DEC AX
JNC DI
DEC CX
5NZ 02
RET
END START
```

Assembly language program and video recording to rotate the Stepper Motor 3 times in any direction:

[lab9-asgn2_op_2021A7PS0136U.mp4]

```
2021 A7 P SO 136U - X. Yeshwenth

'MODEL SMALL
, Stack 700h
, Data

CREDU 0C 263 H
PA E8U 0C 260 H
PB E8U 0C 261 H
PC E8U 0C 262 H

Mug 1 DB ' DEMO Fat steppe motor', 12,10, '$'

Why 2 DR 13,10, 'Running', 13,10, '$'
```

```
· Cosle
start:
MOV AX, @ DATA
mov Ds, Ax
MOV AH, 9H
MOV OX, OFFS &T MY 2
INT 21 H
mov AH, 9H
MOV DX, OFFSET MEG 2
INT 21 h
mov DX, CR
MOV AL, 80h
OUT DX, AL
MOV BL, 150; undate so to 150 for rotating
begin: MOV AL, 88 h
call out - A
call alelay as
mov AL, sh
cal out- A
call delay 22
MOV AL, Ah
call out - A
call delay
```

2021A7PS0136U__K.YASHWANTH__Lab9

```
MOV AL, 114
call out - A
call delay
elee B1
JNZ Begin
MOV AH, 4CH
1NT 21 H
out-A: mov Dx, PA
out DX, AL
 RET
Delay: MOV CX, OFFFh
Dz: MOV AX OSFF H
DI! DEC AX
JNC DI
DEC CX
5NZ 02
RET
END START
```