

STEPCNT.CPP

```
#include<graphics.h>
#include<conio.h>
#include<dos.h>
#include<process.h>
#include<iostream.h>
union REGS r;
void main()
{
    int driver,mode,x,y,but; //initialitions of all variables and functions
    driver = DETECT;
```

```
int initmouse(); // to load mouse driver
int resmpt(int p,int q,int r,int s); // restrict mouse pointer within boundary
int showmpt(); // shows mouse pointer
int getmpos(int *t,int *u, int *v); // captures the current position of mouse pointer
int text(int e,int f); // changes the size and color of text
float s1,d=50,s=60; // default RPM=60 and no. of rotations = 1
float r=1,n=5;
```

```
initgraph(&driver, &mode, "C:\\tc\\bgi"); // initialize graphics mode
outport(0x0378,0x00); // clear parallel port
if(initmouse() == 0)
{
    // load mouse driver if not
    closegraph(); // exit the program
    restorecrtmode();
    cout<<"\nMouse driver not loaded";
    exit(1);
}
```

```
gotoxy(14,10);
cout<<s; // display current RPM
gotoxy(71,10); // and no. of rotations
cout<<r;
showmpt();
resmpt(30,30,635,460);
setcolor(LIGHTRED);
rectangle(30,30,635,460); //Border line
rectangle(70,135,160,165); //RPM Box
rectangle(520,135,610,165); //No. of Rotation box
setfillstyle(SOLID_FILL,YELLOW);
rectangle(180,130,320,170);
floodfill(202,132,LIGHTRED); //clockwise button
rectangle(80,240,170,270);
floodfill(82,242,LIGHTRED); //RPM inc button
rectangle(350,130,490,170);
floodfill(352,132,LIGHTRED); //anticlockwise button
rectangle(200,240,290,270);
floodfill(202,242,LIGHTRED); //RPM dec button
rectangle(380,240,470,270);
floodfill(382,242,LIGHTRED); //rotation inc button
rectangle(500,240,590,270);
floodfill(502,242,LIGHTRED); //rotation dec button
line(125,220,245,220);
line(425,220,545,220);
line(185,220,185,210);
line(485,220,485,210);
line(245,220,245,240);
line(545,220,545,240);
line(125,220,125,240);
line(425,220,425,240);
text(8,13);
outtextxy(195,60,"-: Control Panel -:");
text(6,4);
outtextxy(60,290,"Instructions :-");
outtextxy(210,140,"Clockwise");
outtextxy(360,140,"Anticlockwise");
outtextxy(90,245,"Increase");
outtextxy(210,245,"Decrease");
outtextxy(390,245,"Increase");
outtextxy(510,245,"Decrease");
setcolor(10);
outtextxy(175,190,"RPM");
outtextxy(445,190,"Rotations");
outtextxy(60,110,"Current RPM");
outtextxy(495,110,"No. of Rotations");
text(5,10);
outtextxy(70,310,"# Press 'Clockwise' button to rotate Stepper Motor clockwise");
outtextxy(70,330,"# Press 'Anticlockwise' button to rotate Stepper Motor anticlockwise");
outtextxy(70,350,"# Press 'increase'/'decrease' button to change the RPM");
outtextxy(70,370,"# Press 'increase'/'decrease' button to change the No. of rotations");
setcolor(13);
outtextxy(95,400,"Stepper Motor control using C++ design and developed by");
outtextxy(250,420,"Ashutosh Bhatt");
setcolor(YELLOW);
outtextxy(200,440,"Press any key to exit program");
while(!kbhit()) // loop until any key is pressed
{
    getmpos(&but,&x,&y); // capture current pointer position when click event happens
    if(x>=200 && x<=300 && y>=130 && y<=170 && (but & 1) == 1) // and switch to that if loop
    {
        text(6,13);
        outtextxy(210,140,"Clockwise");
        for(int i=1;i<=n;i++)
        {
            sound(500);
            outport(0x0378,0xcc);
            delay(d);
            outport(0x0378,0xc3);
            delay(d);
            outport(0x0378,0xc3);
            delay(d);
            outport(0x0378,0xc3);
            delay(d);
            nosound();
        } //for loop ends
        text(6,4);
        outtextxy(210,140,"Clockwise");
        // first if ends
    }
    else if(x>=350 && x<=490 && y>=130 && y<=170 && (but & 1) == 1)
```

```
{
    text(6,13);
    outtextxy(360,140,"Anticlockwise");
    for(int i=1;i<=n;i++)
    {
        sound(750);
        outport(0x0378,0xcc);
        delay(d);
        outport(0x0378,0xc3);
        delay(d);
        outport(0x0378,0xc3);
        delay(d);
        outport(0x0378,0xc3);
        delay(d);
        nosound();
    } // for loop ends
    text(6,4);
    outtextxy(360,140,"Anticlockwise");
    // second if ends
}
else if(x>=80 && x<=170 && y>=240 && y<=270 && (but & 1) == 1)
{
    gotoxy(10,10);
    cout<<" ";
    text(6,2);
    outtextxy(90,245,"Increase");
    sound(1000);
    delay(200);
    nosound();
    if(s>=10) s=s+10;
    else s++; // when this button is pressed
    s1 = s/60; // increase current RPM and also
    d = 50/s1; // change delay
    gotoxy(14,10);
    cout<<s;
    text(6,4);
    outtextxy(90,245,"Increase");
    // third if ends
}
else if(x>=200 && x<=290 && y>=240 && y<=270 && (but & 1) == 1)
{
    gotoxy(10,10);
    cout<<" ";
    text(6,2);
    outtextxy(210,245,"Decrease");
    sound(1000);
    delay(200);
    nosound();
    if(s>10)
    {
        s=s-10; // when this button is pressed
        gotoxy(14,10); // decrease it till s>1
        cout<<s; // if s<=1 stop decreasing
    } // and display message
    else
    {
        if(s>1)
        {
            s--;
            gotoxy(14,10);
            cout<<s;
        }
        else
        {
            gotoxy(11,10);
            cout<<"min limit";
        }
    }
    s1 = s/60;
    d = 50/s1;
    text(6,4);
    outtextxy(210,245,"Decrease");
    // forth if ends
}
else if(x>=380 && x<=470 && y>=240 && y<=270 && (but & 1) == 1)
{
    gotoxy(67,10);
    cout<<" ";
    text(6,2);
    outtextxy(390,245,"Increase");
    sound(1000);
    delay(200);
```

```

    nosound();
    if(r<1) r=r*2;
    // when this button is pressed
    else r++; // increase no. of rotations
    gotoxy(71,10); // if rotations are < 1 then
    cout<<r; // double it every time
    n=r*5; // otherwise increase it linearly
    text(6,4);
    outtextxy(390,245,"Increase");
    // fifth if ends
}
else if(x>=500 && x<=590 && y>=240 && y<=270 && (but & 1) == 1)
{
    gotoxy(67,10);
    cout<<" ";
    text(6,2);
    outtextxy(510,245,"Decrease");
    sound(1000);
    delay(200);
    nosound();
    if(r>1)
    {
        r--; // when this button is pressed
        gotoxy(71,10); // decrease No. of rotations
        cout<<r; // till r=0.25 if r<0.25 stop decreasing
    } // and display a message
    else
    {
        if(r>0.25)
        {
            r=r/2;
            gotoxy(71,10);
            cout<<r;
        }
        else
        {
            gotoxy(67,10);
        }
    }
    cout<<"Ooppps...";
    n=r*5;
    text(6,4);
    outtextxy(510,245,"Decrease");
    // last if ends
} // while loop ends
} // main ends

getmpos(int *but,int *x,int *y)
{
    i.x.ax = 3;
    int86(0x33,&i,&o);
    *but = o.x.bx;
    *x = o.x.cx;
    *y = o.x.dx;
}

initmouse()
{
    i.x.ax = 0;
    int86(0x33,&i,&o);
    return(o.x.ax);
}

showmpt()
{
    i.x.ax = 1;
    int86(0x33,&i,&o);
}

resmpt(int a,int b,int c,int d)
{
    i.x.ax = 7;
    i.x.cx = a;
    i.x.dx = c;
    int86(0x33,&i,&o);
    i.x.ax = 8;
    i.x.cx = b;
    i.x.dx = d;
    int86(0x33,&i,&o);
    text(int e,int f)
    {
        setcolor(f);
    }

    settextstyle(SMALL_FONT,HORIZ_DIR,e);
}
```