## APPENDIX II

## TEMPERATURE AND HEAT FLUX MONITERING PROGRAM [BHPT]

```
#include<stdio.h>
 #include<conio.h>
 #include<stdio.h>
 #include<dos.h>
 #include<bios.h>
 #include<graphics.h>
  void initscreen(void);
  void mainscreen();
  int gd=DETECT,gm;
  void main()     /*start of main*/
  {
 char c;
 int gm,gd;
 int x,y,r;
 detectgraph(&gd,&gm);
 initgraph(&gd,&gm,"c:\\tc\\bgi");
 x=getmaxx();
 y=getmaxy();
 for(r=0;r<=240;r++)
 {
  setfillstyle(SOLID_FILL,EGA_RED);
  fillellipse(0,0,r,r);
  fillellipse(x,0,r,r);
  fillellipse(0,y,r,r);
  fillellipse(x,y,r,r);
  delay(10);
 }
 for( r=0;r<=260;r++)
{
  setfillstyle(SOLID_FILL,EGA_BLACK);
  fillellipse(x/2,y/2,r+60,r);
  delay(10);
}
  delay(50);
  settextstyle(DEFAULT_FONT,HORIZ_DIR,2);
  setcolor(6);
  setusercharsize(3,4,3,4);
  outtextxy(150,25," PC BASED TEMPERATURE ");
```

```
 outtextxy(152,45," MONITORING SYSTEM");
 settextstyle(SMALL_FONT,HORIZ_DIR,4);
 setusercharsize(2,1,2,1);
 outtextxy(240,120,"developed by a w k");
 outtextxy(200,270,"under the guidance of "PROF.p c patel");
 settextstyle(SMALL_FONT,HORIZ_DIR,1);
 setusercharsize(3,2,3,2);
 setcolor(EGA_YELLOW);
 outtextxy(180,150,"1) BURN HAZARD ");
 outtextxy(260,151,"2)POTENTIAL TESTER");
// outtextxy(340,152,"3)");
// outtextxy(420,150,"4)");
 setusercharsize(4,2,4,2);
 outtextxy(260,300,"Prof. ");
 outtextxy(180,380,"Press Enter To Continue.....");
 printf("\a");
        do
        {
        c=getch();
        }
        while (c!='\r');
 closegraph();
 mainscreen();
 }
void far putpixel(int x, int y, int color);
void mainscreen()
  {
  float ha,br;
   int gd=DETECT,gm;
   int hf;
   int m,s1,s2,s3,s4,pt=0,t1=210,y1,y2,lt=0,time=0;
   int i,r1,r2,r3[20],r4[20],t[20],time1;
   clrscr();
        initgraph(&gd,&gm,"c:\\tc\\bgi");
        outportb(0x37a,0xb);
        outportb(0x37a,0xf);
        delay(100);
        outportb(0x37a,0xa);
        setcolor(13);
        outtextxy(10,20," ENTER TIME:  ");
```

```
 gotoxy(15,2);
 scanf("%d",&time1);
 while(!kbhit())

 {
 delay(10);
 for( m=0;m<1;m++)
 {
 if(t1<500)
 {

 delay(10) ;
 outportb(0x37a,0xf);                    //soc=1
 delay(10);
 outportb(0x37a,0xb);
 i=0x80;
 while(i!=0x00)
 {
 i=inportb(0x379);
 i=i&0x80;
 }
 outportb(0x37a,0xb);                    //select=0
 delay(10);
 i=inportb(0x379);
 i=i&0x78;
 i=i<<1;
 r1=i&0xf0;
 outportb(0x37a,0x3);                    //select=1
 delay(20);
 i=inportb(0x379);
 i=i>>3;
 r2=i&0x0f;
 r3[m]=r1|r2;
 gotoxy(30,14);
 delay(100) ;
 outportb(0x37a,0xf);                    //soc=1
 delay(20);
 outportb(0x37a,0xb);
 i=0x80;
While (i!=0x00)
```

```
{
    i=inportb(0x379);
    i=i&0x80;
}
    outportb(0x37a,0xb);                    //select=0
    delay(10);
    i=inportb(0x379);
    i=i&0x78;
    i=i<<1;
    r1=i&0xf0;
    outportb(0x37a,0x3);                    //select=1
    delay(20); //20
    i=inportb(0x379);
    i=i>>3;
    r2=i&0x0f;
    r4[m]=r1|r2;
    gotoxy(30,14);
    pt= (r3[m]+r4[m])/2+4; // second 2 is for correction factor of temp.
    m=m+1;
    lt=pt-20;
    ha=(lt*0.056*1.3)/0.123;
    br= 13.7/2;   //for editing burning rate
    hf=ha*br;
    setcolor(12);
    outtextxy(160,30,"< PC BASED TEMPERATURE MONITORING SYSTEM >");
    setcolor(12);
    outtextxy(162,38,"-----------------------------------");
    setcolor(9);
    outtextxy(260,80,"<TEMPERATURE GRAPH>");
    setcolor(14);
    outtextxy(280,260," TIME AXIS ");
    setcolor(9);
    outtextxy(260,280,"<HEAT FLUX GRAPH>");
    setcolor(14);
    outtextxy(280,440," TIME AXIS ");
    setcolor(4);
    outtextxy(10,200,"PRESENT TEMPERATURE IS ");
    printf("\n  [%d]",pt);
    outtextxy(50,220," DEGREE CELCIUS. ");
    setcolor(3);
```

```
outtextxy(20,280,"      HEAT ABSORBED =  ");
printf("\n\n\n\n\n\t   %f",ha);
setcolor(6);
outtextxy(20,325,"      HEAT FLUX = ");
printf("\n\n\n\t   %d",hf);
delay(100);
setcolor(11);
line(210,250,500,250);  //temp graph.
line(210,250,210,80);
y1=pt+250-(2*pt);
putpixel(t1,y1,13);
line(210,430,500,430);  //heat flux graph.
line(210,430,210,80);
y2=hf+420-(2*hf);
putpixel(t1,y2,13);
delay(1000);
time=time+1;
t1=t1+1;
 }
else
{
t1=210;
cleardevice();
}
}
}
}
```