Program For Keypad interfacing with LPC 2148:-

```
#include<LPC214x.h>
#define c1 1<<12
#define c2 1<<13
#define c3 1<<14
#define c4 1<<15
#define r1 1<<16
#define r2 1<<17
#define r3 1<<18
#define r4 1<<19
#define LCD_port 0x00FF0000
#define EN 1<<10
#define RS 1<<11
#define RW 1<<20
#define LCD_shift 16
unsigned int row[]={r1,r2,r3,r4};
unsigned int col[]={c1,c2,c3,c4};
unsigned int codes[]={'1','4','7','*','2','5','8','0','3','6','9','#','A','B','C','D'};
unsigned char key;
void delay(unsignedinttime)
{
unsigned int i,j;
for(i=0;i<1250;i++)
for(j=0;j<50;j++);
}
void kbdinit(void)
{
```

```
PINSEL0&=0x00FFFFFF;
PINSEL1&=0xFFFFFF00;
IODIR0&=~0x000FF000;
IODIR0|=0x0000F000;
IOSET0=0x0000F000;
}
unsigned char getkey()
{
unsigned int c,r,count=0;
for(c=0;c<4;c++)
{
IOCLR0=col[c]; //setcolumnlinelow
r=IOPIN0;
delay(100);
r=IOPIN0;
r>>=16;
if((r&0x0F)!=0x0F)
{
for(count=0;count<4;count++)
{
if((r&0x01)==0)
{
key=codes[(c*4)+count];
IOSET0=col[c];//setcolumnline
return key;
}
r>>=1;
}
```

```
}
IOSET0=col[c];
}
return 0;
}
void LCD_strobe()
{
delay(1000);
IOSET0=EN;
delay(1000);
IOCLR0=EN;
delay(1000);
}
void LCD_data(unsigned char ch)
{
IOCLR1=LCD_port;
IOSET1=ch<<LCD_shift;
IOSET0=RS;
IOCLR0=RW;
LCD_strobe();
}
void LCD_cmd(unsigned char ch)
{
IOCLR1=LCD_port;
IOSET1=ch<<LCD_shift;
IOCLR0=RS;
IOCLR0=RW;
LCD_strobe();
```

```
}
void LCD_init(void)
{
PINSEL0&=0xFF0FFFFF;
PINSEL1&=0xFFFFFCFF;
PINSEL2&=0xFFFFFFF3;
IODIR0|=RS|EN|RW;
IODIR1|=LCD_port;
LCD_cmd(0x38);
LCD_cmd(0x06);
LCD_cmd(0x0C);
LCD_cmd(0x01);
LCD_cmd(0x80);
}
void LCD_display(int row,int pos,unsigned char *ch)
{
unsigned char temp;
if(row==1)
temp=0x80|(pos-1);
else
{
temp=0xC0|(pos-1);
}
LCD_cmd(temp);
while(*ch)
LCD_data(*ch++);
}
int main(void)
```

```
{
unsigned int temp1;
kbdinit();
LCD_init();
getkey();
LCD_display(1,2,"Press a Key");
while(1)
{
temp1=getkey();
if(temp1!=0)
{
LCD_cmd(0x01);
LCD_data(temp1);
}
}
return 0;
}
```