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DEVELOPED BY:- FIRMWARE DEVELOPER

WHAT PROGRAM DO:- DATA ENTERED FROM KEYPAD DISPLAYED ON LCD

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#include<avr/io.h>

#include<util/delay.h>

#define lcd PORTA

#define prt PORTC

#define ddr DDRC

#define pin PINC

unsigned char  key[4][4]={'7','8','9','/',

                          '4','5','6','x',

                          '1','2','3','-',

                          0x01,'0','=','+'};

unsigned char coll,ro\_loc;

unsigned char z='m';

char keypad1();

void cmd(unsigned char x);

void lcd\_display(unsigned char x);

void lcd\_ini();

void lcd\_str(unsigned char \*str);

void main()

  {

     int i=0;

     DDRA=0XFF;

     DDRB=0XFF;

     DDRC=0XF0;

     lcd\_ini();

     while(1)

       {

          i++;

          keypad1();

          lcd\_display(z);

          \_delay\_ms(300);

          if(i==16)

             cmd(0xc0);

          else if(i==32)

           {

                i=0;

                cmd(0x01);

           }

      }

  }

char keypad1()

  {

     prt=0xFF;

     ddr=0xF0;

     while(1)

       {

          prt=0xef;

          coll=(pin & 0x0f);

          if(coll!=0x0f)

            {

                 ro\_loc=0;

                 goto xx;

            }

          prt=0xdf;

          coll=(pin & 0x0f);

          if(coll!=0x0f)

            {

                ro\_loc=1;

                goto xx;

            }

          prt=0xbf;

          coll=(pin & 0x0f);

          if(coll!=0x0f)

            {

                ro\_loc=2;

                goto xx;

            }

          prt=0x7f;

          coll=(pin & 0x0f);

          if(coll!=0x0f)

            {

                ro\_loc=3;

                goto xx;

            }

         xx:;

         if(coll==0x0e)

           {

               z=(key[0][ro\_loc]);

               return z;

           }

         else if(coll==0x0d)

           {

               z=(key[1][ro\_loc]);

               return z;

           }

         else if(coll==0x0b)

           {

                z=(key[2][ro\_loc]);

                return z;

           }

         else if(coll==0x07)

           {

                z=(key[3][ro\_loc]);

                return z;

            }

      }

  }

void cmd(unsigned char x)

   {

       lcd=x;

       PORTB=(0<<0);

       PORTB=(0<<1);

       PORTB=(1<<2);

       \_delay\_ms(10);

       PORTB=(0<<2);

   }

void lcd\_display(unsigned char x)

   {

      lcd=x;

      PORTB=(1<<0);

      PORTB=(0<<1)|(1<<0);

      PORTB=(1<<2)|(0<<1)|(1<<0);

      \_delay\_ms(20);

      PORTB=(0<<2)|(0<<1)|(1<<0);

   }

void lcd\_ini()

   {

      cmd(0x38);

      cmd(0x0e);

      cmd(0x01);

      cmd(0x06);

      cmd(0x80);

   }

void lcd\_str(unsigned char \*str)

   {

      while(\*str!='\0')

        {

            lcd\_display(\*str);

            str++;

        }

   }