```
// include the library
#include <LiquidCrystal.h>


// initialize the interface pins
LiquidCrystal lcd(2,3,4,5,6,7);
int s,m,h,a,d,state,state1,state2,dg,cnt,dt,mo;
char months[13]={' ','1','2','3','4','5','6','7','8','9','o','n','d'};
int l[13]={0,31,29,31,30,31,30,31,31,30,31,30,31};


// the 8 arrays that form each segment of the custom numbers
byte bar1[8] =
{
      B11100,
      B11110,
      B11110,
      B11110,
      B11110,
      B11110,
      B11110,
      B11100
};
byte bar2[8] =
{
      B00111,
```

```
    B01111,
    B01111,
    B01111,
    B01111,
    B01111,
    B01111,
    B00111
};
byte bar3[8] =
{
    B11111,
    B11111,
    B00000,
    B00000,
    B00000,
    B00000,
    B11111,
    B11111
};
byte bar4[8] =
{
    B11110,
    B11100,
    B00000,
    B00000,
    B00000,
    B00000,
    B11000,
```

```
    B11100
};
byte bar5[8] =
{
    B01111,
    B00111,
    B00000,
    B00000,
    B00000,
    B00000,
    B00011,
    B00111
};
byte bar6[8] =
{
    B00000,
    B00000,
    B00000,
    B00000,
    B00000,
    B00000,
    B11111,
    B11111
};
byte bar7[8] =
{
    B00000,
    B00000,
```

```
        B00000,
        B00000,
        B00000,
        B00000,
        B00111,
        B01111
};
byte bar8[8] =
{
        B11111,
        B11111,
        B00000,
        B00000,
        B00000,
        B00000,
        B00000,
        B00000
};

void setup()
{
  // assignes each segment a write number
  lcd.createChar(1,bar1);
  lcd.createChar(2,bar2);
  lcd.createChar(3,bar3);
  lcd.createChar(4,bar4);
  lcd.createChar(5,bar5);
  lcd.createChar(6,bar6);
```

```
  lcd.createChar(7,bar7);
  lcd.createChar(8,bar8);



  state=1;
  state1=1;
  state2=1;
  // sets the LCD's rows and colums:
  lcd.begin(16, 2);
  pinMode(8,INPUT);
    pinMode(9,INPUT);
      pinMode(10,INPUT);
  s=0;
  m=0;
   h=0;
  dt=1;
  mo=1;
}




void custom0(int col)
{ // uses segments to build the number 0
  lcd.setCursor(col, 0);
  lcd.write(2);
  lcd.write(8);
  lcd.write(1);
  lcd.setCursor(col, 1);
```

```
  lcd.write(2);
  lcd.write(6);
  lcd.write(1);
}

void custom1(int col)
{
  lcd.setCursor(col,0);
  lcd.write(32);
  lcd.write(32);
  lcd.write(1);
  lcd.setCursor(col,1);
  lcd.write(32);
  lcd.write(32);
  lcd.write(1);
}

void custom2(int col)
{
  lcd.setCursor(col,0);
  lcd.write(5);
  lcd.write(3);
  lcd.write(1);
  lcd.setCursor(col, 1);
  lcd.write(2);
  lcd.write(6);
  lcd.write(6);
}
```

```
void custom3(int col)
{
  lcd.setCursor(col,0);
  lcd.write(5);
  lcd.write(3);
  lcd.write(1);
  lcd.setCursor(col, 1);
  lcd.write(7);
  lcd.write(6);
  lcd.write(1);
}

void custom4(int col)
{
  lcd.setCursor(col,0);
  lcd.write(2);
  lcd.write(6);
  lcd.write(1);
  lcd.setCursor(col, 1);
  lcd.write(32);
  lcd.write(32);
  lcd.write(1);
}

void custom5(int col)
{
  lcd.setCursor(col,0);
```

```
  lcd.write(2);
  lcd.write(3);
  lcd.write(4);
  lcd.setCursor(col, 1);
  lcd.write(7);
  lcd.write(6);
  lcd.write(1);
}

void custom6(int col)
{
  lcd.setCursor(col,0);
  lcd.write(2);
  lcd.write(3);
  lcd.write(4);
  lcd.setCursor(col, 1);
  lcd.write(2);
  lcd.write(6);
  lcd.write(1);
}

void custom7(int col)
{
  lcd.setCursor(col+0,0);
  lcd.write(8);
  lcd.write(8);
  lcd.write(1);
  lcd.setCursor(col, 1);
```

```
  lcd.write(32);
  lcd.write(32);
  lcd.write(1);
}

void custom8(int col)
{
  lcd.setCursor(col, 0);
  lcd.write(2);
  lcd.write(3);
  lcd.write(1);
  lcd.setCursor(col, 1);
  lcd.write(2);
  lcd.write(6);
  lcd.write(1);
}

void custom9(int col)
{
  lcd.setCursor(col, 0);
  lcd.write(2);
  lcd.write(3);
  lcd.write(1);
  lcd.setCursor(col, 1);
  lcd.write(7);
  lcd.write(6);
  lcd.write(1);
}
```

```
void printNumber(int value, int col) {
  if (value == 0) {
    custom0(col);
  } if (value == 1) {
    custom1(col);
  } if (value == 2) {
    custom2(col);
  } if (value == 3) {
    custom3(col);
  } if (value == 4) {
    custom4(col);
  } if (value == 5) {
    custom5(col);
  } if (value == 6) {
    custom6(col);
  } if (value == 7) {
    custom7(col);
  } if (value == 8) {
    custom8(col);
  } if (value == 9) {
    custom9(col);
  }
}
```

```
void loop()


{
  if(digitalRead(8)&&state==1){
    cnt++;
    state=0;
    cnt=cnt%5;
    }else if(!digitalRead(8)&&state==0){
    state=1;
    }
  if (digitalRead(9)&&state1==1){
    dg=1;
    state1=0;


    }else if(!digitalRead(9)&&state1==0){
    state1=1;
    }


if(digitalRead(10)&&state2==1){
     dg=-1;
     state2=0;
```

```
}else if(!digitalRead(10)&state2==0){
state2=1;
}
switch(cnt){
  case 2:
  m=m+dg;
  dg=0;  if(m>59){
m=0;}
if(m<0){
m=59;}
  break;

  case 1:
  h=h+dg;
  dg=0;if(h>23){
h=h-24;}
if(h<0){
h=23;}
  break;

 case 3:
  dt=dt+dg;
  dg=0;if(dt>l[mo]){
dt=l[mo];}
if(dt<1){
  dt=1;}
  break;
 case 4:
```

```
   mo=mo+dg;
   dg=0;if(mo>12){
  mo=1;
   }
  if(mo<1){
    mo=12;}
  if(dt>l[mo]){
  dt=1;
  mo++;
   mo=(1+(mo-1)%12);
  }
    break;
  }
if(s>59){
  s=0;
  m++;

if(m>59){
  m=0;
 h++;

if(h>23){
  h=0;
  dt++;

if(dt>l[mo]){
  dt=1;
  mo++;
```

```
 }
   if(mo>12){
 mo=1;
 }

}
}
}
h=h;
d=(h)%10;
printNumber(d, 3);
d=(h)/10;
 printNumber(d, 0);

    d=m%10;
  printNumber(d, 10);
  d=m/10;
  printNumber(d, 7);
  lcd.setCursor(14, 0);


  lcd.print(s/10);

  lcd.print(s%10);

  lcd.setCursor(13, 1);
   lcd.print(months[mo]);
  lcd.print(dt/10);
```

```
 lcd.print(dt%10);
    if(cnt==0){
       s++;
      lcd.setCursor(6, 0);
  lcd.print(" ");
   lcd.setCursor(6, 1);
  lcd.print(" ");
   lcd.setCursor(13,0);
          lcd.print(" ");
  delay(500);
lcd.setCursor(6, 0);
  lcd.print(".");
   lcd.setCursor(6, 1);
  lcd.print(".");
    lcd.setCursor(13,0);
  lcd.print(":");
  delay(500);
   }}
```