[code]
/*
[code]
/*

GLCD Shield Example

This example shows an application on 1Sheeld's GLCD shield.

By using this example, you can draw a simple intreface for
your home automation projects that consists of 3 buttons.

OPTIONAL:
To reduce the library compiled size and limit its memory usage, you
can specify which shields you want to include in your sketch by
defining CUSTOM_SETTINGS and the shields respective INCLUDE_ define.

*/

```
#define CUSTOM_SETTINGS
#define INCLUDE_GLCD_SHIELD

/* Include 1Sheeld library. */
#include <OneSheeld.h>

int relayex = 5;
bool exWasON = false;


int relayfr = 6;
bool frWasON = false;

int relayfc = 7;
bool fcWasON = false;

int relayfl = 8;
bool flWasON = false;

int relaybc = 9;
bool bcWasON = false;

/* A name for the LED on pin 10. */
int relayar = 10;
bool arWasON = false;
/* A name for the LED on pin 13. */
int ledPin1 = 13;
```

```
bool blWasON = false;

/* A name for the LED on pin 12. */
int ledPin2 = 12;
bool alWasON = false;

/* A name for the relay on pin 11. */
int relayPin = 11;

/* A variable that specify if the coffee machine was on. */
bool puWasON = false;

int relayPin1 = 14;

bool boWasON = false;

int relayBl1 = 15;

bool brWasON = false;


/* A variable that specify if the button is pressed at least once. */
bool firstTimePressed = false;
/* a name for relay pin 14 */


/* Borders for the interface. */
GLCDRectangle border1(0,0,255,127);
GLCDRectangle border2(2,2,251,123);

/* The  Buttons.*/
GLCDButton lightButton1(3,3,45,30,"BL:ON");
GLCDButton lightButton2(53,3,45,30,"AL:ON");
GLCDButton pumpButton(102,3,45,30,"PU:ON");
GLCDButton light1Buttonup(3,33,22,30,"+");
GLCDButton light1Buttondown(25,33,22,30,"-");
GLCDButton light2Buttonup(53,33,22,30,"+");
GLCDButton light2Buttondown(75,33,22,30,"-");
GLCDButton boilerButton(102,95,45,30,"BO:ON");
GLCDButton backlight1Button(3,64,45,30,"BR:ON");
GLCDButton backlight1Buttonup(3,95,22,30,"+");
GLCDButton backlight1Buttondown(25,95,22,30,"-");
GLCDButton alcoverightButton(53,64,45,30,"AR:ON");
GLCDButton alcoverightButtonup(53,95,22,30,"+");
GLCDButton alcoverightButtondown(75,95,22,30,"-");
GLCDButton backcentreButton(102,33,45,30,"BC:ON");
```

```
GLCDButton backcentreButtonup(102,64,22,30,"+");
GLCDButton backcentreButtondown(125,64,22,30,"-");
GLCDButton frontleftButton(155,3,45,30,"FL:ON");
GLCDButton frontcentreButton(155,34,45,30,"FC:ON");
GLCDButton frontrightButton(155,64,45,30,"FR:ON");
GLCDButton extButton(208,3,45,30,"EX:ON");
void setup()
{
  /* Start communication. */
  OneSheeld.begin();

  /* Clear the GLCD. */
  GLCD.clear();

  /* Draw the  buttons. */
  drawAllShapes();

  /* Change the styles of the buttons to 3D. */
  setButtonStyles();

  /* Set the button handlers. */
  setButtonTasks();

  /* Set the  LEDs and the relay pins modes to output. */
  pinMode(ledPin1,OUTPUT);
  pinMode(ledPin2,OUTPUT);
  pinMode(relayPin,OUTPUT);
  pinMode(relayPin1,OUTPUT);
  pinMode(relayPin1,OUTPUT);
  pinMode(relayBl1,OUTPUT);
  pinMode(relayar,OUTPUT);
  pinMode(relayfl,OUTPUT);
  pinMode(relayfc,OUTPUT);
  pinMode(relayfr,OUTPUT);
  pinMode(relayex,OUTPUT);
}

void loop()
{
  /* Leave the loop empty. */
}


void drawAllShapes()
{
  /* Draw the two borders and the three buttons. */
```

```
  GLCD.draw(border1);
  GLCD.draw(border2);
  GLCD.draw(lightButton1);
  GLCD.draw(lightButton2);
  GLCD.draw(pumpButton);
  GLCD.draw(light1Buttonup);
  GLCD.draw(light1Buttondown);
  GLCD.draw(light2Buttonup);
  GLCD.draw(light2Buttondown);
  GLCD.draw(boilerButton);
  GLCD.draw(backlight1Button);
  GLCD.draw(backlight1Buttonup);
  GLCD.draw(backlight1Buttondown);
  GLCD.draw(alcoverightButton);
  GLCD.draw(alcoverightButtonup);
  GLCD.draw(alcoverightButtondown);
  GLCD.draw(backcentreButton);
  GLCD.draw(backcentreButtonup);
  GLCD.draw(backcentreButtondown);
  GLCD.draw(frontleftButton);
  GLCD.draw(frontrightButton);
  GLCD.draw(frontcentreButton);
  GLCD.draw(extButton);
}

void setButtonTasks()
{
  lightButton1.setOnChange(&button1Task);
  lightButton2.setOnChange(&button2Task);
  pumpButton.setOnChange(&pumpTask);
  boilerButton.setOnChange(&boilerButtonTask);
  backlight1Button.setOnChange(&backlight1ButtonTask);
  alcoverightButton.setOnChange(&alcoverightButtonTask);
  backcentreButton.setOnChange(&backcentreButtonTask);
  frontleftButton.setOnChange(&frontleftButtonTask);
  frontcentreButton.setOnChange(&frontcentreButtonTask);
  frontrightButton.setOnChange(&frontrightButtonTask);
  extButton.setOnChange(&extButtonTask);
}

void setButtonStyles()
{
  lightButton1.setStyle(STYLE_3D);
  lightButton2.setStyle(STYLE_3D);
  pumpButton.setStyle(STYLE_3D);
  boilerButton.setStyle(STYLE_3D);
```

```
  backlight1Button.setStyle(STYLE_3D);
  alcoverightButton.setStyle(STYLE_3D);
  backcentreButton.setStyle(STYLE_3D);
  frontleftButton.setStyle(STYLE_3D);
  frontrightButton.setStyle(STYLE_3D);
  frontcentreButton.setStyle(STYLE_3D);
  extButton.setStyle(STYLE_3D);
}

void button1Task(bool button1State)
{
  if(button1State)
  {
          if(firstTimePressed)
          {
          digitalWrite(ledPin1,LOW);
          lightButton1.setText("BL:ON");
          blWasON = true;
          firstTimePressed = false;
          }
  else
          {
          digitalWrite(ledPin1,HIGH);
          lightButton1.setText("BL:OFF");
          blWasON = false;
          }
  }
          else if (!blWasON)
  {
          firstTimePressed = true;
  }
}
void button2Task(bool button2State)
{
  if(button2State)
  {
          if(firstTimePressed)
          {
          digitalWrite(ledPin2,LOW);
          lightButton2.setText("AL:ON");
          alWasON = true;
          firstTimePressed = false;

          }
          else
          {
```

```
        digitalWrite(ledPin2,HIGH);
        lightButton2.setText("AL:OFF");
        alWasON = false;
        }
  }
   else if (!alWasON)
  {
        firstTimePressed = true;
  }
}

void pumpTask(bool pumpButtonState)
{
  if(pumpButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayPin,LOW);
        pumpButton.setText("PU:ON");
        puWasON = true;
        firstTimePressed = false;


        }
        else
        {
        digitalWrite(relayPin,HIGH);
        pumpButton.setText("PU:OFF");
        puWasON = false;
        }
  }
  else if(!puWasON)
  {

        firstTimePressed = true;
  }
}
void boilerButtonTask(bool boilerButtonState)
{
  if(boilerButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayPin1,LOW);
        boilerButton.setText("BO:ON");
        boWasON = true;
```

```
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayPin1,HIGH);
        boilerButton.setText("BO:OFF");
        boWasON = false;
        }
 }
 else if(!boWasON)
 {
        firstTimePressed = true;
 }
}
void backlight1ButtonTask(bool backlight1ButtonState)
{
 if(backlight1ButtonState)
 {
        if(firstTimePressed)
        {
        digitalWrite(relayBl1,LOW);
        backlight1Button.setText("BR:ON");
        brWasON = true;
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayBl1,HIGH);
        backlight1Button.setText("BR:OFF");
        brWasON = false;
        }
 }
 else if(!brWasON)
 {
        firstTimePressed = true;
 }
}
void alcoverightButtonTask(bool alcoverightButtonState)
{
 if(alcoverightButtonState)
 {
        if(firstTimePressed)
        {
        digitalWrite(relayar,LOW);
        alcoverightButton.setText("AR:ON");
        arWasON = true;
```

```
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayar,HIGH);
        alcoverightButton.setText("AR:OFF");
        arWasON = false;
        }
  }
  else if(!arWasON)
  {
        firstTimePressed = true;
  }
}
void backcentreButtonTask(bool backcentreButtonState)
{
  if(backcentreButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relaybc,LOW);
        backcentreButton.setText("BC:ON");
        bcWasON = true;
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relaybc,HIGH);
        backcentreButton.setText("BC:OFF");
        brWasON = false;
        }
  }
  else if(!brWasON)
  {
        firstTimePressed = true;
  }
}
void frontleftButtonTask(bool frontleftButtonState)
{
  if(frontleftButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayfl,LOW);
        frontleftButton.setText("FL:ON");
        flWasON = true;
```

```
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayfl,HIGH);
        frontleftButton.setText("FL:OFF");
        flWasON = false;
        }
  }
  else if(!flWasON)
  {
        firstTimePressed = true;
  }
}
void frontcentreButtonTask(bool frontcentreButtonState)
{
  if(frontcentreButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayfc,LOW);
        frontcentreButton.setText("FC:ON");
        fcWasON = true;
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayfc,HIGH);
        frontcentreButton.setText("FC:OFF");
        fcWasON = false;
        }
  }
  else if(!fcWasON)
  {
        firstTimePressed = true;
  }
}
void frontrightButtonTask(bool frontrightButtonState)
{
  if(frontrightButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayfr,LOW);
        frontrightButton.setText("FR:ON");
        frWasON = true;
```

```
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayfr,HIGH);
        frontrightButton.setText("FR:OFF");
        frWasON = false;
        }
  }
  else if(!frWasON)
  {
        firstTimePressed = true;
  }
}
void extButtonTask(bool extButtonState)
{
  if(extButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayex,LOW);
        extButton.setText("EX:ON");
        exWasON = true;
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayex,HIGH);
        extButton.setText("EX:OFF");
        exWasON = false;
        }
  }
  else if(!exWasON)
  {
        firstTimePressed = true;
  }
}
[/code]
```

GLCD Shield Example

This example shows an application on 1Sheeld's GLCD shield.

By using this example, you can draw a simple intreface for
your home automation projects that consists of 3 buttons.

OPTIONAL:

```
To reduce the library compiled size and limit its memory usage, you
can specify which shields you want to include in your sketch by
defining CUSTOM_SETTINGS and the shields respective INCLUDE_ define.

*/

#define CUSTOM_SETTINGS
#define INCLUDE_GLCD_SHIELD

/* Include 1Sheeld library. */
#include <OneSheeld.h>

int relayex = 5;
bool exWasON = false;


int relayfr = 6;
bool frWasON = false;

int relayfc = 7;
bool fcWasON = false;

int relayfl = 8;
bool flWasON = false;

int relaybc = 9;
bool bcWasON = false;

/* A name for the LED on pin 10. */
int relayar = 10;
bool arWasON = false;
/* A name for the LED on pin 13. */
int ledPin1 = 13;
bool blWasON = false;

/* A name for the LED on pin 12. */
int ledPin2 = 12;
bool alWasON = false;

/* A name for the relay on pin 11. */
int relayPin = 11;

/* A variable that specify if the coffee machine was on. */
bool puWasON = false;

int relayPin1 = 14;
```

```
bool boWasON = false;

int relayBl1 = 15;

bool brWasON = false;


/* A variable that specify if the button is pressed at least once. */
bool firstTimePressed = false;
/* a name for relay pin 14 */


/* Borders for the interface. */
GLCDRectangle border1(0,0,255,127);
GLCDRectangle border2(2,2,251,123);

/* The  Buttons.*/
GLCDButton lightButton1(3,3,45,30,"BL:ON");
GLCDButton lightButton2(53,3,45,30,"AL:ON");
GLCDButton pumpButton(102,3,45,30,"PU:ON");
GLCDButton light1Buttonup(3,33,22,30,"+");
GLCDButton light1Buttondown(25,33,22,30,"-");
GLCDButton light2Buttonup(53,33,22,30,"+");
GLCDButton light2Buttondown(75,33,22,30,"-");
GLCDButton boilerButton(102,95,45,30,"BO:ON");
GLCDButton backlight1Button(3,64,45,30,"BR:ON");
GLCDButton backlight1Buttonup(3,95,22,30,"+");
GLCDButton backlight1Buttondown(25,95,22,30,"-");
GLCDButton alcoverightButton(53,64,45,30,"AR:ON");
GLCDButton alcoverightButtonup(53,95,22,30,"+");
GLCDButton alcoverightButtondown(75,95,22,30,"-");
GLCDButton backcentreButton(102,33,45,30,"BC:ON");
GLCDButton backcentreButtonup(102,64,22,30,"+");
GLCDButton backcentreButtondown(125,64,22,30,"-");
GLCDButton frontleftButton(155,3,45,30,"FL:ON");
GLCDButton frontcentreButton(155,34,45,30,"FC:ON");
GLCDButton frontrightButton(155,64,45,30,"FR:ON");
GLCDButton extButton(208,3,45,30,"EX:ON");
void setup()
{
  /* Start communication. */
  OneSheeld.begin();

  /* Clear the GLCD. */
  GLCD.clear();
```

```
  /* Draw the  buttons. */
  drawAllShapes();

  /* Change the styles of the buttons to 3D. */
  setButtonStyles();

  /* Set the button handlers. */
  setButtonTasks();

  /* Set the  LEDs and the relay pins modes to output. */
  pinMode(ledPin1,OUTPUT);
  pinMode(ledPin2,OUTPUT);
  pinMode(relayPin,OUTPUT);
  pinMode(relayPin1,OUTPUT);
  pinMode(relayPin1,OUTPUT);
  pinMode(relayBl1,OUTPUT);
  pinMode(relayar,OUTPUT);
  pinMode(relayfl,OUTPUT);
  pinMode(relayfc,OUTPUT);
  pinMode(relayfr,OUTPUT);
  pinMode(relayex,OUTPUT);
}

void loop()
{
  /* Leave the loop empty. */
}


void drawAllShapes()
{
  /* Draw the two borders and the three buttons. */
  GLCD.draw(border1);
  GLCD.draw(border2);
  GLCD.draw(lightButton1);
  GLCD.draw(lightButton2);
  GLCD.draw(pumpButton);
  GLCD.draw(light1Buttonup);
  GLCD.draw(light1Buttondown);
  GLCD.draw(light2Buttonup);
  GLCD.draw(light2Buttondown);
  GLCD.draw(boilerButton);
  GLCD.draw(backlight1Button);
  GLCD.draw(backlight1Buttonup);
  GLCD.draw(backlight1Buttondown);
```

```
  GLCD.draw(alcoverightButton);
  GLCD.draw(alcoverightButtonup);
  GLCD.draw(alcoverightButtondown);
  GLCD.draw(backcentreButton);
  GLCD.draw(backcentreButtonup);
  GLCD.draw(backcentreButtondown);
  GLCD.draw(frontleftButton);
  GLCD.draw(frontrightButton);
  GLCD.draw(frontcentreButton);
  GLCD.draw(extButton);
}

void setButtonTasks()
{
  lightButton1.setOnChange(&button1Task);
  lightButton2.setOnChange(&button2Task);
  pumpButton.setOnChange(&pumpTask);
  boilerButton.setOnChange(&boilerButtonTask);
  backlight1Button.setOnChange(&backlight1ButtonTask);
  alcoverightButton.setOnChange(&alcoverightButtonTask);
  backcentreButton.setOnChange(&backcentreButtonTask);
  frontleftButton.setOnChange(&frontleftButtonTask);
  frontcentreButton.setOnChange(&frontcentreButtonTask);
  frontrightButton.setOnChange(&frontrightButtonTask);
  extButton.setOnChange(&extButtonTask);
}

void setButtonStyles()
{
  lightButton1.setStyle(STYLE_3D);
  lightButton2.setStyle(STYLE_3D);
  pumpButton.setStyle(STYLE_3D);
  boilerButton.setStyle(STYLE_3D);
  backlight1Button.setStyle(STYLE_3D);
  alcoverightButton.setStyle(STYLE_3D);
  backcentreButton.setStyle(STYLE_3D);
  frontleftButton.setStyle(STYLE_3D);
  frontrightButton.setStyle(STYLE_3D);
  frontcentreButton.setStyle(STYLE_3D);
  extButton.setStyle(STYLE_3D);
}

void button1Task(bool button1State)
{
  if(button1State)
  {
```

```
        if(firstTimePressed)
        {
        digitalWrite(ledPin1,LOW);
        lightButton1.setText("BL:ON");
        blWasON = true;
        firstTimePressed = false;
        }
  else
        {
        digitalWrite(ledPin1,HIGH);
        lightButton1.setText("BL:OFF");
        blWasON = false;
        }
  }
        else if (!blWasON)
  {
        firstTimePressed = true;
  }
}
void button2Task(bool button2State)
{
  if(button2State)
  {
        if(firstTimePressed)
        {
        digitalWrite(ledPin2,LOW);
        lightButton2.setText("AL:ON");
        alWasON = true;
        firstTimePressed = false;

        }
        else
        {
        digitalWrite(ledPin2,HIGH);
        lightButton2.setText("AL:OFF");
        alWasON = false;
        }
  }
   else if (!alWasON)
  {
        firstTimePressed = true;
  }
}

void pumpTask(bool pumpButtonState)
{
```

```
  if(pumpButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayPin,LOW);
        pumpButton.setText("PU:ON");
        puWasON = true;
        firstTimePressed = false;


        }
        else
        {
        digitalWrite(relayPin,HIGH);
        pumpButton.setText("PU:OFF");
        puWasON = false;
        }
  }
  else if(!puWasON)
  {

        firstTimePressed = true;
  }
}
void boilerButtonTask(bool boilerButtonState)
{
  if(boilerButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayPin1,LOW);
        boilerButton.setText("BO:ON");
        boWasON = true;
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayPin1,HIGH);
        boilerButton.setText("BO:OFF");
        boWasON = false;
        }
  }
  else if(!boWasON)
  {
        firstTimePressed = true;
  }
```

```
}
void backlight1ButtonTask(bool backlight1ButtonState)
{
  if(backlight1ButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayBl1,LOW);
        backlight1Button.setText("BR:ON");
        brWasON = true;
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayBl1,HIGH);
        backlight1Button.setText("BR:OFF");
        brWasON = false;
        }
  }
  else if(!brWasON)
  {
        firstTimePressed = true;
  }
}
void alcoverightButtonTask(bool alcoverightButtonState)
{
  if(alcoverightButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayar,LOW);
        alcoverightButton.setText("AR:ON");
        arWasON = true;
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayar,HIGH);
        alcoverightButton.setText("AR:OFF");
        arWasON = false;
        }
  }
  else if(!arWasON)
  {
        firstTimePressed = true;
  }
```

```
}
void backcentreButtonTask(bool backcentreButtonState)
{
  if(backcentreButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relaybc,LOW);
        backcentreButton.setText("BC:ON");
        bcWasON = true;
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relaybc,HIGH);
        backcentreButton.setText("BC:OFF");
        brWasON = false;
        }
  }
  else if(!brWasON)
  {
        firstTimePressed = true;
  }
}
void frontleftButtonTask(bool frontleftButtonState)
{
  if(frontleftButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayfl,LOW);
        frontleftButton.setText("FL:ON");
        flWasON = true;
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayfl,HIGH);
        frontleftButton.setText("FL:OFF");
        flWasON = false;
        }
  }
  else if(!flWasON)
  {
        firstTimePressed = true;
  }
```

```
}
void frontcentreButtonTask(bool frontcentreButtonState)
{
  if(frontcentreButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayfc,LOW);
        frontcentreButton.setText("FC:ON");
        fcWasON = true;
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayfc,HIGH);
        frontcentreButton.setText("FC:OFF");
        fcWasON = false;
        }
  }
  else if(!fcWasON)
  {
        firstTimePressed = true;
  }
}
void frontrightButtonTask(bool frontrightButtonState)
{
  if(frontrightButtonState)
  {
        if(firstTimePressed)
        {
        digitalWrite(relayfr,LOW);
        frontrightButton.setText("FR:ON");
        frWasON = true;
        firstTimePressed = false;
        }
        else
        {
        digitalWrite(relayfr,HIGH);
        frontrightButton.setText("FR:OFF");
        frWasON = false;
        }
  }
  else if(!frWasON)
  {
        firstTimePressed = true;
  }
```

```
}
void extButtonTask(bool extButtonState)
{
  if(extButtonState)
  {
          if(firstTimePressed)
          {
          digitalWrite(relayex,LOW);
          extButton.setText("EX:ON");
          exWasON = true;
          firstTimePressed = false;
          }
          else
          {
          digitalWrite(relayex,HIGH);
          extButton.setText("EX:OFF");
          exWasON = false;
          }
  }
  else if(!exWasON)
  {
          firstTimePressed = true;
  }
}
[/code]
```