

# 10

## Interactive Name Tag

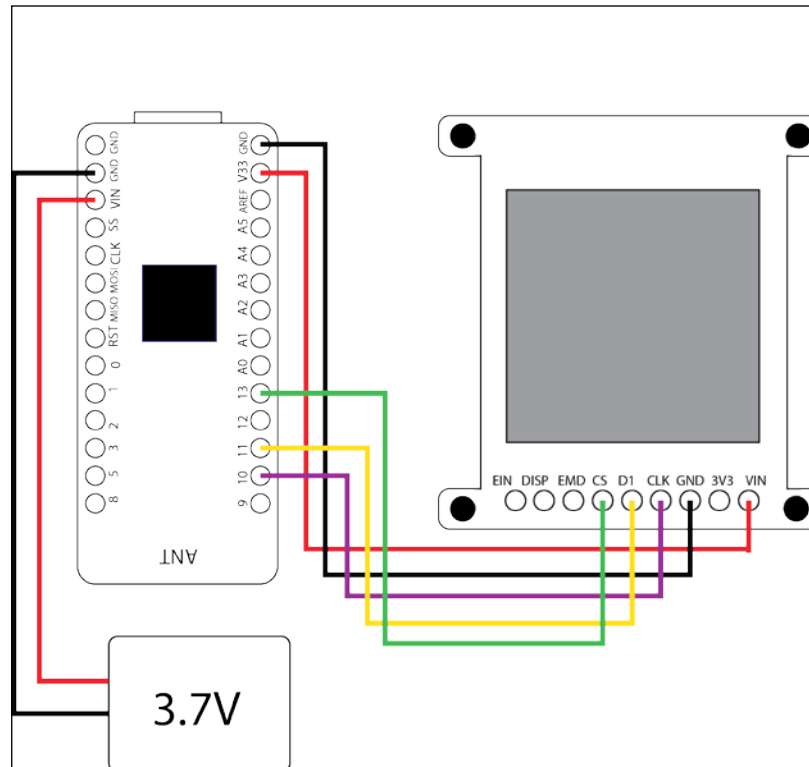
There was no room for this mini project in *Chapter 7, Wearable BLE*, where we were working with the Blend Micro. So, this project comes as bonus content to those who want to learn a little bit more about the Blend Micro and small screens. The idea is to create an interactive name tag for you to show off your name and skills. In order to show your name, among other things, we will be using a SHARP Memory display. The SHARP Memory display is a mix of eInk and a classic LCD display where pixels show up as small mirrors, which is pretty cool. In order to use the display, you will need to download the following library and install it, as in previous chapters:

[https://github.com/adafruit/Adafruit\\_SHARP\\_Memory\\_Display](https://github.com/adafruit/Adafruit_SHARP_Memory_Display).

You will also need the Adafruit GFX library. It is the same library used in *Chapter 5, Where in the world am I*. If you have gone through this chapter, there is no need to install it again.

<https://github.com/adafruit/Adafruit-GFX-Library>

Once you have the libraries, it's time to solder the screen to the Blend Micro board. I recommend using soft wires or a flat cable for this, since you will need the cables to be flexible. The following figure shows the schematics for the circuit design:



The connections that need to be made between the Blend Micro and the OLED screen are as follows:

- **VIN** to **V33**
- **GND** to **GND**
- **CLK** to pin **10**
- **D1** to pin **11**
- **CS** to pin **13**

You can leave the remaining pins unsoldered since these are used for advanced operations. To connect the battery to the Blend Micro, you need to solder either the male pin headers or a JST female connector to **VIN** and **GND** on the Blend Micro board.

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Once all the soldering is done, it is time to upload the following code to the board:

```
#include <Adafruit_GFX.h>
#include <Adafruit_SharpMem.h>
#include <SPI.h>
#include <EEPROM.h>
#include <boards.h>
#include <RBL_nRF8001.h>

#define SCK 10
#define MOSI 11
#define SS 13

Adafruit_SharpMem display(SCK, MOSI, SS);

#define BLACK 0
#define WHITE 1
unsigned char buf[16] = {0};
unsigned char len = 0;

void setup(void)
{
    ble_begin();
    Serial.begin(57600);
    // start & clear the display
    display.begin();
    display.clearDisplay();

    // text display tests
    display.setTextSize(1);
    display.setTextColor(BLACK);
    display.setCursor(0,0);
    display.println("Redy to recive");

    delay(2000);
}

void loop(void)
{
    if ( ble_available() )
    {
        display.clearDisplay();
        display.setTextSize(2);
        display.setTextColor(BLACK);
    }
}
```

```
    display.setCursor(5,0);
    while ( ble_available() ){

        char printChar=ble_read();
        if(printChar==' '){
            display.println();
        }else{
            display.print(printChar);
        }
        display.refresh();
    }

    // Serial.println();
}
    ble_do_events();
    display.refresh();
    delay(500);
}
```

The preceding sketch reads any data that is sent to the Blend Micro over BLE and prints the data to the screen. In order to send information to the screen, use the BLE Controller app and switch to the **Simple chat** in the menu and connect to the board. Now, anything you type in the input box will show up on your screen.

This time around, I thought it would be fun not to hide the electronics for once, but to showcase them instead. Most name tags are placed in transparent plastic sleeves, which I think works perfect for this mini project. Once you have checked that everything works, simply slip the components into one of these plastic sleeves and you are good to go. Not only can you reuse this nametag for any event, but you can also change the text, or even switch between some cool graphics on the fly while sure to make an impression.



## Summary

Even though this project is short, I hope you found it sweet. In this project, you learned more about how to interface with screens and how send and receive messages from the Blend Micro board. This projects shows how you can make an extended screen to any device that can connect over Bluetooth. A name tag is just one fun way of showing off the skills you learned, but the same technology can have many different functions. By adding a sensor, you can create something similar to a fitness band or use it as a messaging system where you can leave a note behind. As always, I urge you to rethink this project and find new context where this technology may fit.

