

```
#include <OneWire.h>
```

```
#include <DallasTemperature.h>
```

```
#include <LiquidCrystal.h>
```

```
#include <dht11.h>
```

```
#include <math.h>
```

```
LiquidCrystal lcd(7, 8, 9, 10, 11, 12);
```

```
dht11 DHT11;
```

```
#define ONE_WIRE_BUS 3
```

```
#define DHT11PIN 2
```

```
OneWire oneWire(ONE_WIRE_BUS);
```

```
DallasTemperature sensors(&oneWire);
```

```
DeviceAddress OTA, EP;
```

```
void setup() {
```

```
    Serial.begin(9600);
```

```
    sensors.begin();
```

```
    //search for devices on the bus and assign based on an index
```

```
    if(!sensors.getAddress(OTA, 0))Serial.println("Unable to find address for Device 0");
```

```
if(!sensors.getAddress(EP, 1))Serial.println("Unable to find address for Device 1");
```

```
sensors.setResolution(OTA, 10);
```

```
sensors.setResolution(EP, 10);
```

```
lcd.begin(16,2);
```

```
lcd.setCursor(0,0); lcd.print("*** ArDewIno *** ");
```

```
lcd.setCursor(0,1); lcd.print(" Dew Controller");
```

```
delay(3000);
```

```
lcd.clear();
```

```
pinMode(5, OUTPUT);
```

```
pinMode(6, OUTPUT);
```

```
}
```

```
void printTemperature(DeviceAddress deviceAddress)
```

```
{
```

```
float tempC = sensors.getTempC(deviceAddress);
```

```
Serial.println(DallasTemperature::toFahrenheit(tempC));
```

```
if (tempC == -127.00) {
```

```
    lcd.print("XX");
```

```
}  
else {  
    lcd.print(int(DallasTemperature::toFahrenheit(tempC)));  
}  
  
}  
  
void loop(void)  
{  
  
    int chk = DHT11.read(DHT11PIN);  
  
    //Lcd display for ambient temp, humidity and dew point on line 1. Remote temps for OTA and EP on  
    line 2.  
  
    lcd.setCursor(0,0);  
  
    lcd.print("T");  
  
    lcd.print((int)DHT11.fahrenheit(), DEC);  
  
    lcd.setCursor(5,0);  
  
    lcd.print("H");  
  
    lcd.print((int)((float)DHT11.humidity), DEC);  
  
    lcd.print("%");  
  
    lcd.setCursor(10,0);  
  
    lcd.print("Dew");  
  
    lcd.print((int)((DHT11.dewPointFast()*1.8+32)), DEC);  
  
    lcd.setCursor(15,0);  
  
    lcd.print(" ");
```

```
sensors.requestTemperatures();

float Scope = (sensors.getTempFByIndex(0));
float Eye = (sensors.getTempFByIndex(1));
int Telescope = Scope;
int Eyepiece = Eye;
int DEW = ((int)((DHT11.dewPointFast()*1.8+32)));

Serial.print("OTA:");
printTemperature(OTA);
Serial.print("Scope:");
Serial.println(Scope);
Serial.print("EP:");
printTemperature(EP);
Serial.print("Eyepiece:");
Serial.println(Eye);
Serial.print("DewPoint:");
Serial.println(((int)((DHT11.dewPointFast()*1.8+32)));
Serial.println();
Serial.print("Telescope");
Serial.println(Telescope);

lcd.setCursor(0,1);
lcd.print("OTA ");
```

```
printTemperature(OTA);
```

```
lcd.print(" ");
```

```
if(Telescope <= DEW+10) {
```

```
    digitalWrite(5,HIGH);
```

```
    lcd.setCursor(6,1);
```

```
    lcd.print("^");
```

```
}
```

```
else
```

```
{
```

```
    digitalWrite(5,LOW);
```

```
    lcd.setCursor(6,1);
```

```
    lcd.print(" ");
```

```
}
```

```
if(sensors.getAddress(EP, 1)) {
```

```
    lcd.setCursor(9,1);
```

```
    lcd.print("EP ");
```

```
    printTemperature(EP);
```

```
    lcd.print(" ");
```

```
if(Eyepiece <= DEW+10) {
```

```
    digitalWrite(6,HIGH);
```

```
    lcd.setCursor(14,1);
```

```
    lcd.print("^");  
  }  
  else  
  {  
    digitalWrite(6,LOW);  
    lcd.setCursor(14,1);  
    lcd.print(" ");  
  }  
}  
else  
{  
  lcd.setCursor(7,1);  
  lcd.print("  ");  
}  
  
delay(1000);  
  
}
```