Code

Arduino Sketch

```
#include <Adafruit_Fingerprint.h>
#include <DFRobot_RGBLCD.h>

// On Leonardo/Micro or others with hardware serial, use those! #0 is green wire, #1 is white
// uncomment this line:
// #define mySerial Serial1

// For UNO and others without hardware serial, we must use software serial...
// pin #2 is IN from sensor (GREEN wire)
// pin #3 is OUT from arduino  (WHITE wire)
// comment these two lines if using hardware serial
SoftwareSerial mySerial(2, 3);
DFRobot_RGBLCD lcd(16,2);

Adafruit_Fingerprint finger = Adafruit_Fingerprint(&mySerial);
bool lastState = -1;
int relay1 = 8;
void setup()
{
   pinMode( relay1, OUTPUT);
   digitalWrite(relay1, HIGH);

   lcd.init();
 Serial.begin(9600);
 while (!Serial);  // For Yun/Leo/Micro/Zero/...
 delay(100);
 Serial.println("\n\nAdafruit finger detect test");
```

```
  // set the data rate for the sensor serial port
  finger.begin(57600);

  if (finger.verifyPassword()) {
    Serial.println("Found fingerprint sensor!");
  } else {
    Serial.println("Did not find fingerprint sensor :(");
    while (1) { delay(1); }
  }

  finger.getTemplateCount();
  Serial.print("Sensor contains "); Serial.print(finger.templateCount); Serial.println(" templates");
  Serial.println("Waiting for valid finger...");

  displayWaitFinger();




}

void loop()                     // run over and over again
{

  int id;

  id = getFingerprintIDez();

  if( id == -1 ){
     if( lastState == 0){
        lastState = -1;
        displayInvalidFinger();
        delay(2000);
        displayWaitFinger();
     }
```

```
 }

 else if( id != -1){
     digitalWrite(relay1, LOW);
    displayFingerOK();
    delay(2000);
    displayWaitFinger();
     digitalWrite(relay1, HIGH);
 }

 delay(50);           //don't ned to run this at full speed.
}

uint8_t getFingerprintID() {
 uint8_t p = finger.getImage();
 switch (p) {
  case FINGERPRINT_OK:
   Serial.println("Image taken");
   break;
  case FINGERPRINT_NOFINGER:
   Serial.println("No finger detected");
   return p;
  case FINGERPRINT_PACKETRECIEVEERR:
   Serial.println("Communication error");
   return p;
  case FINGERPRINT_IMAGEFAIL:
   Serial.println("Imaging error");
   return p;
  default:
   Serial.println("Unknown error");
   return p;
 }

 // OK success!
```

```
p = finger.image2Tz();
switch (p) {
  case FINGERPRINT_OK:
    Serial.println("Image converted");
    break;
  case FINGERPRINT_IMAGEMESS:
    Serial.println("Image too messy");
    return p;
  case FINGERPRINT_PACKETRECIEVEERR:
    Serial.println("Communication error");
    return p;
  case FINGERPRINT_FEATUREFAIL:
    Serial.println("Could not find fingerprint features");
    return p;
  case FINGERPRINT_INVALIDIMAGE:
    Serial.println("Could not find fingerprint features");
    return p;
  default:
    Serial.println("Unknown error");
    return p;
}

// OK converted!
p = finger.fingerFastSearch();
if (p == FINGERPRINT_OK) {
  Serial.println("Found a print match!");
} else if (p == FINGERPRINT_PACKETRECIEVEERR) {
  Serial.println("Communication error");
  return p;
} else if (p == FINGERPRINT_NOTFOUND) {
  Serial.println("Did not find a match");

  return p;
} else {
  Serial.println("Unknown error");
```

```
   return p;
  }

  // found a match!
  Serial.print("Found ID #"); Serial.print(finger.fingerID);
  Serial.print(" with confidence of "); Serial.println(finger.confidence);

  return finger.fingerID;
}

// returns -1 if failed, otherwise returns ID #
int getFingerprintIDez() {
  uint8_t p = finger.getImage();
  Serial.println(p);
   if( p == 0 ){
     lastState = 0;
   }

  if (p != FINGERPRINT_OK)  return -1;

  p = finger.image2Tz();
  if (p != FINGERPRINT_OK)  return -1;

  p = finger.fingerFastSearch();
  if (p != FINGERPRINT_OK)  return -1;

  lastState = 1;

  // found a match!
  Serial.print("Found ID #"); Serial.print(finger.fingerID);
  Serial.print(" with confidence of "); Serial.println(finger.confidence);
  return finger.fingerID;
}
void displayWaitFinger()
{
```

```
  lcd.clear();
  lcd.setRGB(255, 255, 255);
  lcd.setCursor(0,0);
  lcd.print("PUT YOUR FINGER");
  lcd.setCursor(0,1);
  lcd.print("ON THE SCANNER");
}

void displayInvalidFinger()
{
  lcd.clear();
  lcd.setRGB(255, 0, 0);
  lcd.setCursor(0,0);
  lcd.print("FINGER");
  lcd.setCursor(0,1);
  lcd.print("NOT FOUND!!!");
}
void displayFingerOK()
{
  lcd.clear();
  lcd.setRGB(0, 255, 0);
  lcd.setCursor(0,0);
  lcd.print("WELCOME ");
  lcd.setCursor(0,1);
  lcd.print("DOOR UNLOCK");
}
```