Sure! Below is the complete code, components list, and connections for your Smart Door Lock with Face Detection and Keypad Arduino project.

□ Project: Smart Door Lock with Face Detection and Keypad

□ List of Components

Component	Quantity
Arduino Uno / Nano	1
4x4 Matrix Keypad	1
Servo Motor (SG90 or MG90)	1
Buzzer	1
Green LED	1
Red LED	1
0.96” OLED Display (I2C SSD1306)	1
ESP8266 (Optional for alerts)	1
Jumper Wires	As needed

Breadboard	1
External 5V power supply (for servo)	1

□ Circuit Connections

□ Keypad (4x4)

Keypad Pin	Arduino Pin
R1	2
R2	3
R3	4
R4	5
C1	6
C2	7
C3	8
C4	9

□ Servo Motor

Servo Wire	Arduino Pin
Signal	10
VCC	5V External
GND	GND

□ Buzzer and LEDs

Component	Arduino Pin
Green LED	11
Red LED	12
Buzzer	13

□ OLED Display (SSD1306, I2C)

OLED Pin	Arduino Pin
VCC	5V
GND	GND
SDA	A4
SCL	A5

Optional ESP8266 or Face Detection input via Serial or Pin A0.

□ Arduino Code

```
#include <Keypad.h>
#include <Servo.h>
#include <Wire.h>
#include <Adafruit_GFX.h>
#include <Adafruit_SSD1306.h>

#define SCREEN_WIDTH 128
#define SCREEN_HEIGHT 64
Adafruit_SSD1306 display(SCREEN_WIDTH, SCREEN_HEIGHT, &Wire, -1);

// Servo
Servo doorServo;
const int servoPin = 10;

// LEDs and Buzzer
const int greenLED = 11;
const int redLED = 12;
const int buzzer = 13;

// Correct password
String password = "1234";
```

```
String inputPassword = "";

// Keypad setup
const byte ROWS = 4;
const byte COLS = 4;
char keys[ROWS][COLS] = {
  {'1','2','3','A'},
  {'4','5','6','B'},
  {'7','8','9','C'},
  {'*','0','#','D'}
};

byte rowPins[ROWS] = {2, 3, 4, 5};
byte colPins[COLS] = {6, 7, 8, 9};

Keypad keypad = Keypad(makeKeymap(keys), rowPins, colPins, ROWS, COLS);

void setup() {
  pinMode(greenLED, OUTPUT);
  pinMode(redLED, OUTPUT);
  pinMode(buzzer, OUTPUT);

  doorServo.attach(servoPin);
  doorServo.write(0); // Locked

  Serial.begin(9600);
  display.begin(SSD1306_SWITCHCAPVCC, 0x3C);
  displayDisplay("System Ready");
}
```

```
void loop() {
  // Face unlock simulation: 'F' sent via serial from Python/OpenCV
  if (Serial.available()) {
    char face = Serial.read();
    if (face == 'F') {
      unlockDoor("Face Recognized");
    }
  }

  char key = keypad.getKey();
  if (key) {
    if (key == '#') {
      if (inputPassword == password) {
        unlockDoor("Access Granted");
      } else {
        failedAttempt("Wrong PIN");
      }
      inputPassword = "";
    } else if (key == '*') {
      inputPassword = "";
      displayDisplay("PIN Cleared");
    } else {
      inputPassword += key;
      displayDisplay("PIN: " + inputPassword);
    }
  }
}
```

```
void unlockDoor(String msg) {
  displayDisplay(msg);
  digitalWrite(greenLED, HIGH);
  digitalWrite(buzzer, HIGH);
  doorServo.write(90); // Unlock
  delay(2000);
  doorServo.write(0); // Lock again
  digitalWrite(greenLED, LOW);
  digitalWrite(buzzer, LOW);
  displayDisplay("Door Locked");
}

void failedAttempt(String msg) {
  displayDisplay(msg);
  digitalWrite(redLED, HIGH);
  digitalWrite(buzzer, HIGH);
  delay(2000);
  digitalWrite(redLED, LOW);
  digitalWrite(buzzer, LOW);
  displayDisplay("Try Again");
}

void displayDisplay(String msg) {
  display.clearDisplay();
  display.setTextSize(1);
  display.setTextColor(SSD1306_WHITE);
  display.setCursor(0,20);
  display.println(msg);
  display.display();
```

```
}
```

Note : use arduino ide for uploading code