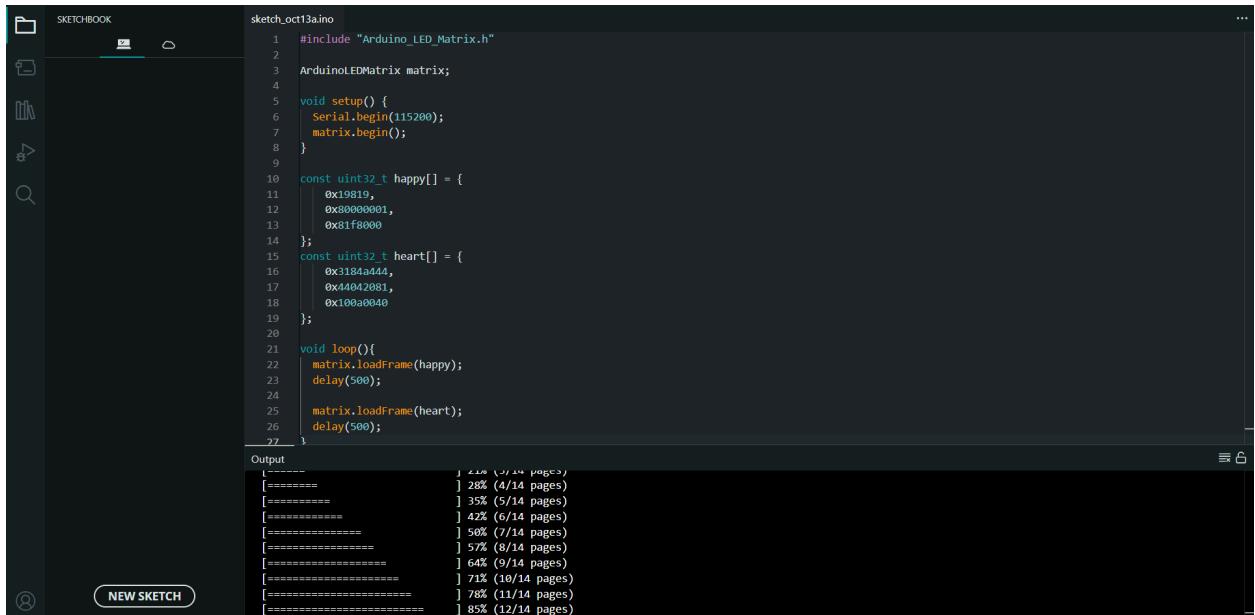


Using the Arduino UNO R4 WiFi LED Matrix

Testing It Out

Smiley + Heart



```
sketch_oct13a.ino
1 #include "Arduino_LED_Matrix.h"
2
3 ArduinoLEDMatrix matrix;
4
5 void setup() {
6   Serial.begin(115200);
7   matrix.begin();
8 }
9
10 const uint32_t happy[] = {
11   0x19819,
12   0x80000001,
13   0x81f8000
14 };
15 const uint32_t heart[] = {
16   0x3184a444,
17   0x4d4d42681,
18   0x100a0040
19 };
20
21 void loop(){
22   matrix.loadFrame(happy);
23   delay(500);
24
25   matrix.loadFrame(heart);
26   delay(500);
27 }
```

Output

```
[=====] 2.2% (2/14 pages)
[=====] 28% (4/14 pages)
[=====] 35% (5/14 pages)
[=====] 42% (6/14 pages)
[=====] 50% (7/14 pages)
[=====] 57% (8/14 pages)
[=====] 64% (9/14 pages)
[=====] 71% (10/14 pages)
[=====] 78% (11/14 pages)
[=====] 85% (12/14 pages)
```

Wink

The screenshot shows the Arduino IDE interface with the sketch_oct13a.ino file open. The code is written in C++ and defines a matrix of 8x12 pixels. It includes functions for initializing the matrix, setting up serial communication at 115200 bps, and performing various eye and mouth patterns. The code uses a global variable frame[8][12] to store the pixel values.

```
File Edit Sketch Tools Help
Select Board
sketch_oct13a.ino
1 #include "Arduino_LED_Matrix.h"
2
3 ArduinOLEDMatrix matrix;
4
5 void setup() {
6   Serial.begin(115200);
7   matrix.begin();
8 }
9
10 uint8_t frame[8][12] = [
11   { 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 },
12   { 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 },
13   { 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 },
14   { 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 },
15   { 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 },
16   { 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 },
17   { 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 },
18   { 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0 }
19 ];
20
21 void leftEye(){
22   //Left eye
23   frame[1][3] = 1;
24   frame[1][4] = 1;
25   frame[2][3] = 1;
26   frame[2][4] = 1;
27 }
28
29 void wink(){
30   //Wink with the left eye
31   frame[1][3] = 0;
32   frame[1][4] = 0;
33   frame[2][3] = 1;
34   frame[2][4] = 1;
35 }
36
37 void rightEye(){
38   //Right eye
39   frame[1][8] = 1;
40   frame[1][9] = 1;
41   frame[2][8] = 1;
42   frame[2][9] = 1;
43 }
44
45 void mouth(){
46   //Mouth
47   frame[5][3] = 1;
48   frame[5][9] = 1;
49   frame[6][3] = 1;
50   frame[6][4] = 1;
51   frame[6][5] = 1;
52   frame[6][6] = 1;
53   frame[6][7] = 1;
54   frame[6][8] = 1;
55   frame[6][9] = 1;
56 }
57
58 void loop(){
59   leftEye();
60   rightEye();
61   mouth();
62
63   matrix.renderBitmap(frame, 8, 12);
64
65   delay(1000);
66   wink();
67
68   matrix.renderBitmap(frame, 8, 12);
69   delay(1000);
70 }
```

The screenshot shows the Arduino IDE interface with the sketch_oct13a.ino file open, continuing from the previous screen. The code includes functions for rendering the bitmap and performing a loop with a 1-second delay and a wink. The code uses a global variable frame[8][12] to store the pixel values.

```
sketch_oct13a.ino
33   frame[2][3] = 1;
34   frame[2][4] = 1;
35 }
36
37 void rightEye(){
38   //Right eye
39   frame[1][8] = 1;
40   frame[1][9] = 1;
41   frame[2][8] = 1;
42   frame[2][9] = 1;
43 }
44
45 void mouth(){
46   //Mouth
47   frame[5][3] = 1;
48   frame[5][9] = 1;
49   frame[6][3] = 1;
50   frame[6][4] = 1;
51   frame[6][5] = 1;
52   frame[6][6] = 1;
53   frame[6][7] = 1;
54   frame[6][8] = 1;
55   frame[6][9] = 1;
56 }
57
58 void loop(){
59   leftEye();
60   rightEye();
61   mouth();
62
63   matrix.renderBitmap(frame, 8, 12);
64
65   delay(1000);
66   wink();
67
68   matrix.renderBitmap(frame, 8, 12);
69   delay(1000);
70 }
```

Scrolling Text

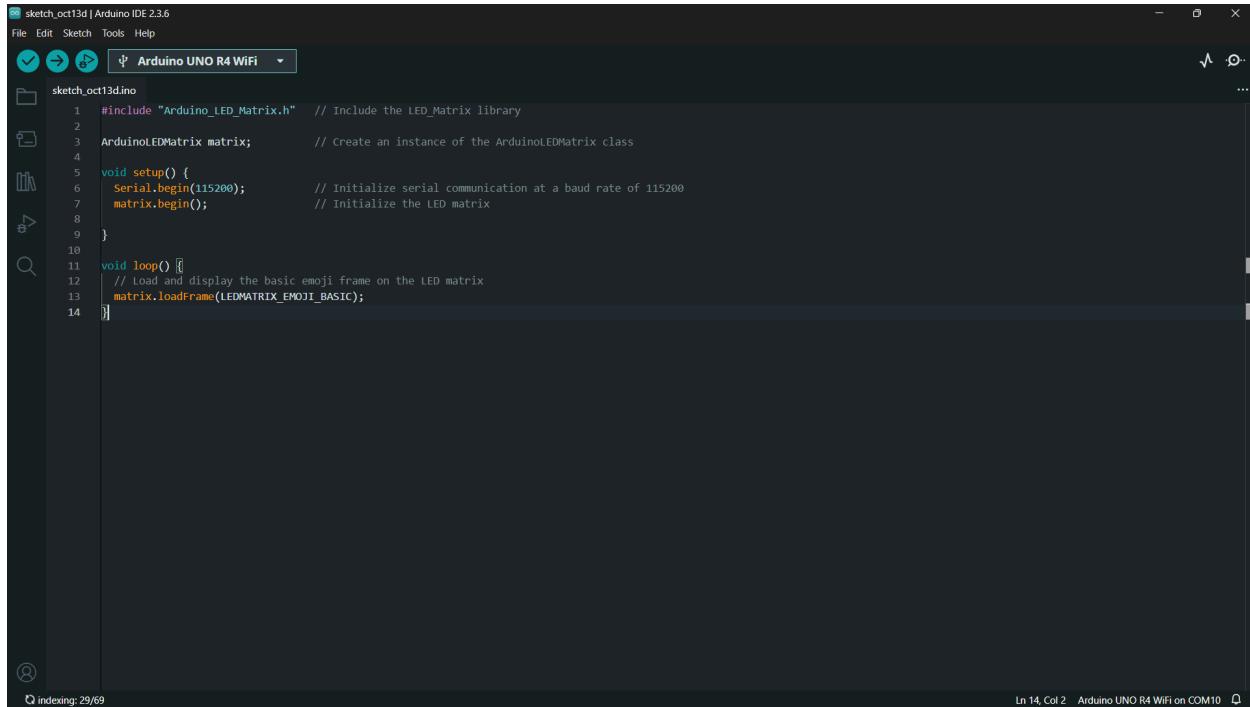
The screenshot shows the Arduino IDE version 2.3.6. The title bar reads "sketch_oct13c | Arduino IDE 2.3.6". The top menu includes File, Edit, Sketch, Tools, and Help. A dropdown menu shows "Arduino UNO R4 WiFi". The code editor displays "sketch_oct13c.ino" with the following content:

```
5  ArduinoLEDMatrix matrix;
6
7 void setup() {
8   Serial.begin(115200);
9   matrix.begin();
10
11  matrix.beginDraw();
12  matrix.stroke(0xFFFFFFFF);
13  // add some static text
14  // will only show "UNO" (not enough space on the display)
15  const char text[] = "UNO r4";
16  matrix.textFont(Font_4x6);
17  matrix.beginText(0, 1, 0xFFFFFFFF);
18  matrix.println(text);
19  matrix.endText();
20
21  matrix.endDraw();
22
23  delay(2000);
24 }
25
26 void loop() {
27
28  // Make it scroll!
29  matrix.beginDraw();
30
31  matrix.stroke(0xFFFFFFFF);
32  matrix.textScrollSpeed(50);
33
34  // add the text
35  const char text[] = "Hello World!      ";
36  matrix.textFont(Font_5x7);
37  matrix.beginText(0, 1, 0xFFFFFFFF);
38  matrix.println(text);
39  matrix.endText(SCROLL_LEFT);
40
41  matrix.endDraw();
42 }
```

The status bar at the bottom right indicates "Ln 20, Col 1" and "Arduino UNO R4 WiFi on COM10".

Frame Gallery

Frames

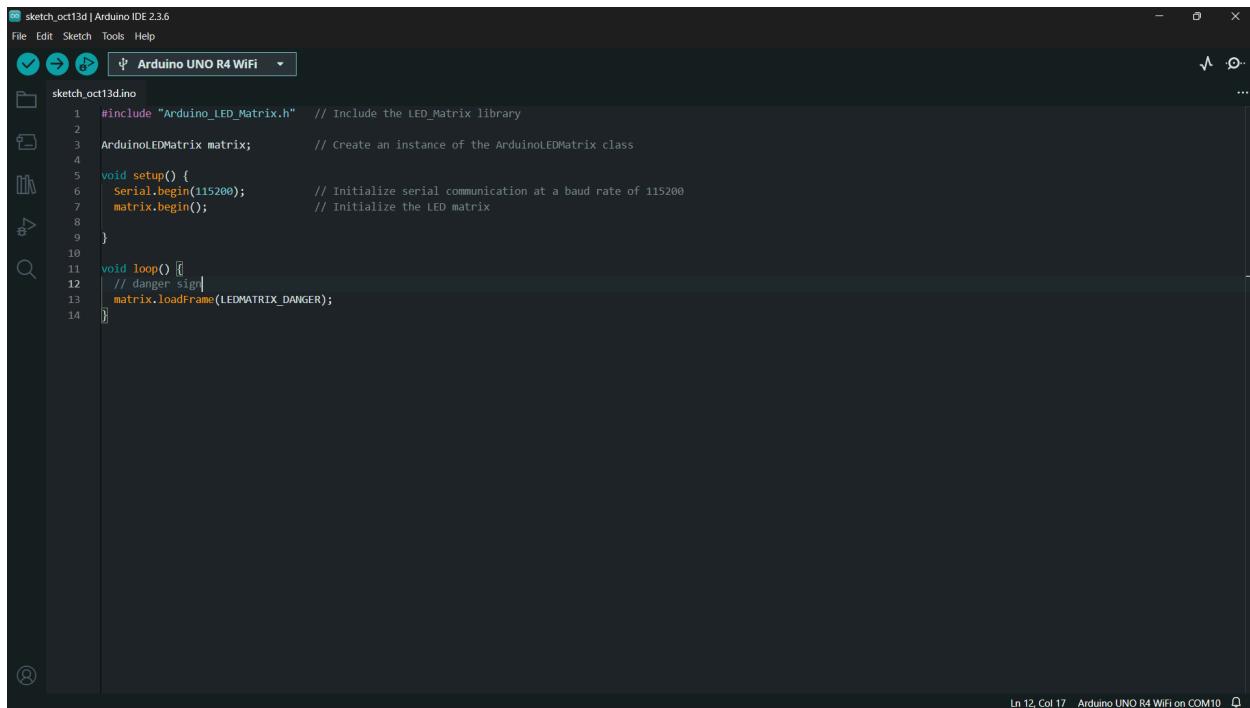


The screenshot shows the Arduino IDE interface with a dark theme. The title bar reads "sketch_oct13d | Arduino IDE 2.3.6". The toolbar includes icons for file operations, sketch management, and serial communication. A dropdown menu shows "Arduino Uno R4 WiFi". The main code editor window contains the following C++ code:

```
#include "Arduino_LED_Matrix.h" // Include the LED_Matrix library
ArduinoLEDMatrix matrix; // Create an instance of the ArduinoLEDMatrix class
void setup() {
    Serial.begin(115200); // Initialize serial communication at a baud rate of 115200
    matrix.begin(); // Initialize the LED matrix
}
void loop() {
    // Load and display the basic emoji frame on the LED matrix
    matrix.loadFrame(LEDMATRIX_EMOJI_BASIC);
}
```

The status bar at the bottom left shows "Q indexing: 29/69" and the bottom right shows "Ln 14, Col 2 Arduino Uno R4 WiFi on COM10".

Frame 1: Danger



The screenshot shows the Arduino IDE interface with a dark theme. The title bar reads "sketch_oct13d | Arduino IDE 2.3.6". The toolbar includes icons for file operations, sketch management, and serial communication. A dropdown menu shows "Arduino Uno R4 WiFi". The main code editor window contains the following C++ code, identical to the previous screenshot but with a cursor at the beginning of the "danger" string:

```
#include "Arduino_LED_Matrix.h" // Include the LED_Matrix library
ArduinoLEDMatrix matrix; // Create an instance of the ArduinoLEDMatrix class
void setup() {
    Serial.begin(115200); // Initialize serial communication at a baud rate of 115200
    matrix.begin(); // Initialize the LED matrix
}
void loop() {
    // danger sign
    matrix.loadFrame(LEDMATRIX_DANGER);
}
```

The status bar at the bottom right shows "Ln 12, Col 17 Arduino Uno R4 WiFi on COM10".

Frame 2: Cloud Wifi

The screenshot shows the Arduino IDE interface with the title bar "sketch_oct13e | Arduino IDE 2.3.6". The central area displays the following C++ code:

```
1 #include "Arduino_LED_Matrix.h" // Include the LED_Matrix library
2
3 ArduinotEDMatrix matrix; // Create an instance of the ArduinotEDMatrix class
4
5 void setup() {
6     Serial.begin(115200); // Initialize serial communication at a baud rate of 115200
7     matrix.begin(); // Initialize the LED matrix
8 }
9
10 void loop() {
11     // cloud wifi
12     matrix.loadFrame(LEDMATRIX_CLOUD_WIFI);
13 }
14 }
```

The status bar at the bottom right indicates "Ln 12, Col 16 Arduino Uno R4 WiFi on COM10".

Frame 3: Like

The screenshot shows the Arduino IDE interface with the title bar "sketch_oct13f | Arduino IDE 2.3.6". The central area displays the following C++ code:

```
1 #include "Arduino_LED_Matrix.h" // Include the LED_Matrix library
2
3 ArduinotEDMatrix matrix; // Create an instance of the ArduinotEDMatrix class
4
5 void setup() {
6     Serial.begin(115200); // Initialize serial communication at a baud rate of 115200
7     matrix.begin(); // Initialize the LED matrix
8 }
9
10 void loop() {
11     // like
12     matrix.loadFrame(LEDMATRIX_LIKE);
13 }
14 }
```

The status bar at the bottom right indicates "Ln 12, Col 10 Arduino Uno R4 WiFi on COM10".

Animations

Animation 1: Battery

The screenshot shows the Arduino IDE 2.3.6 interface. The top menu bar includes File, Edit, Sketch, Tools, Help, and a dropdown for boards set to "Arduino UNO R4 WiFi". Below the menu is a toolbar with icons for file operations, a search function, and a serial monitor. The main workspace displays the sketch file "sketch_oct13g.ino". The code is as follows:

```
sketch_oct13g.ino
1 #include "Arduino_LED_Matrix.h" //include the LED_Matrix library
2
3 // Create an instance of the ArduinoOLEDMatrix class
4 ArduinoLEDMatrix matrix;
5
6 void setup() {
7   Serial.begin(115200);
8   matrix.loadSequence(LEDMATRIX_ANIMATION_BATTERY);
9   matrix.begin();
10  matrix.play(true);
11 }
12
13 void loop() {
14 }
```

The output window at the bottom shows the compilation results:

```
Sketch uses 53640 bytes (20%) of program storage space. Maximum is 262144 bytes.
Global variables use 6864 bytes (20%) of dynamic memory, leaving 25904 bytes for local variables. Maximum is 32768 bytes.
```

At the bottom right, status information indicates "Ln 8, Col 43" and "Arduino UNO R4 WiFi on COM10".

Animation 2: Bug

The screenshot shows the Arduino IDE 2.3.6 interface. The top menu bar includes File, Edit, Sketch, Tools, Help, and a dropdown for boards set to "Arduino UNO R4 WiFi". Below the menu is a toolbar with icons for file operations, a search function, and a serial monitor. The main workspace displays the sketch file "sketch_oct13h.ino". The code is as follows:

```
sketch_oct13h.ino
1 #include "Arduino_LED_Matrix.h" //include the LED_Matrix library
2
3 // Create an instance of the ArduinoOLEDMatrix class
4 ArduinoLEDMatrix matrix;
5
6 void setup() {
7   Serial.begin(115200);
8   matrix.loadSequence(LEDMATRIX_ANIMATION_BUG);
9   matrix.begin();
10  matrix.play(true);
11 }
12
13 void loop() {
14 }
15
```

The output window at the bottom shows the compilation results:

```
indexing: 68/69
Ln 8, Col 46 Arduino UNO R4 WiFi on COM10
```

Animation 3: Arrows Compass

The screenshot shows the Arduino IDE interface with the following details:

- Title Bar:** sketch_oct13i | Arduino IDE 2.3.6
- Tool Bar:** File, Edit, Sketch, Tools, Help
- Sketch Selection:** sketch_oct13i.ino
- Board Selection:** Arduino Uno R4 WiFi
- Code Area:** The code listed below is pasted into the main editor area.
- Status Bar:** indexing: 50/70, Ln 15, Col 1, Arduino Uno R4 WiFi on COM10

```
#include "Arduino_LED_Matrix.h" //include the LED_Matrix library
// Create an instance of the ArduinoOLEDMatrix class
ArduinoLEDMatrix matrix;
void setup() {
    Serial.begin(115200);
    matrix.loadSequence(LEDMATRIX_ANIMATION_ARROWS_COMPASS);
    matrix.begin();
    matrix.play(true);
}
void loop() {
```