

PaperColor Mic

PaperColor Mic-related APIs and example code.

| Example Code

| Build Requirements

- M5Stack Board Manager version $\geq 3.2.7$
- Board option = M5PaperColor
- M5Unified library version $\geq 0.2.15$
- M5GFX library version $\geq 0.2.21$

```
1  #include <M5Unified.h>
2
3  static constexpr const size_t record_number      = 256;
4  static constexpr const size_t record_length      = 200;
5  static constexpr const size_t record_size        = record_number * record_length;
6  static constexpr const size_t record_samplerate = 16000;
7
8  static int16_t *rec_data;
9  static size_t rec_record_idx = 0;
10 static size_t draw_record_idx = 0;
11 static bool is_recording      = false;
12 static bool auto_playback     = false;
13
14 M5Canvas canvas(&M5.Display);
15
16 void drawUI()
17 {
18     const int w = M5.Display.width();
19     const int h = M5.Display.height();
20
21     canvas.fillSprite(TFT_WHITE);
22     canvas.setTextDatum(top_center);
23
24     // Title
25     canvas.setFont(&fonts::FreeSansBold18pt7b);
26     canvas.setTextColor(TFT_BLACK);
27     canvas.drawString("AUDIO RECORDER", w / 2, 14);
28
29     // Instructions
30     canvas.setFont(&fonts::FreeSansBold18pt7b);
31     canvas.setTextSize(1);
32
33     canvas.setTextColor(TFT_RED);
34     canvas.drawString("Press Button A", w / 2, h / 2 - 50);
35
36     canvas.setTextColor(TFT_BLUE);
37     canvas.drawString("to Record", w / 2, h / 2);
38
39     canvas.setTextColor(TFT_GREEN);
40     canvas.drawString("Release to Playback", w / 2, h / 2 + 50);
41
42     canvas.pushSprite(0, 0);
43 }
44
45 void setup()
46 {
47     auto cfg = M5.config();
48     M5.begin(cfg);
49     M5.Display.setEpdMode(epd_mode_t::epd_quality);
50 }
```

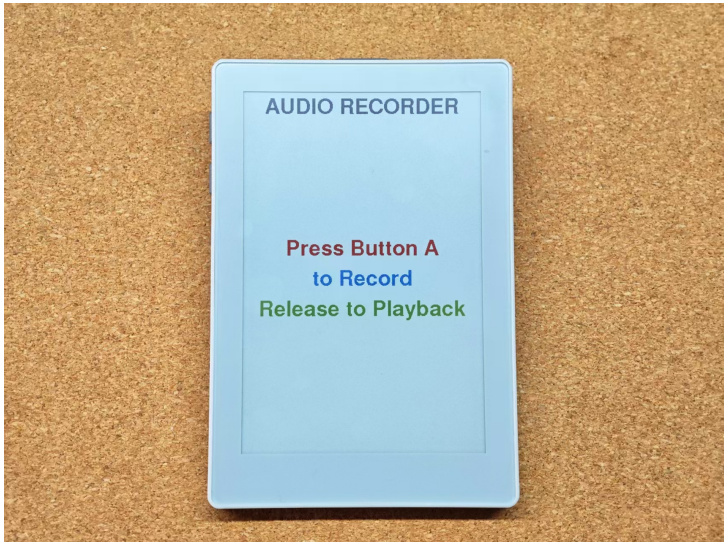
```

51     if (M5.Display.width() > M5.Display.height()) {
52         M5.Display.setRotation(M5.Display.getRotation() ^ 1);
53     }
54
55     canvas.createSprite(M5.Display.width(), M5.Display.height());
56     drawUI();
57
58     // Allocate recording buffer
59     rec_data = (int16_t *)heap_caps_malloc(record_size * sizeof(int16_t), MALLOC_CAP_8BIT);
60     memset(rec_data, 0, record_size * sizeof(int16_t));
61
62     M5.Speaker.setVolume(255);
63     M5.Speaker.end();
64     M5.Mic.begin();
65 }
66
67 void loop()
68 {
69     M5.update();
70
71     if (M5.BtnA.wasPressed() && M5.Mic.isEnabled()) {
72         is_recording = true;
73         rec_record_idx = 0;
74         memset(rec_data, 0, record_size * sizeof(int16_t));
75     }
76
77     // If recording
78     if (is_recording && M5.Mic.isEnabled()) {
79         auto data = &rec_data[rec_record_idx * record_length];
80         if (M5.Mic.record(data, record_length, record_samplerate)) {
81             if (++rec_record_idx >= record_number) {
82                 rec_record_idx = 0;
83             }
84         }
85
86         if (M5.BtnA.wasReleased()) {
87             is_recording = false;
88             auto_playback = true;
89
90             while (M5.Mic.isRecording()) {
91                 M5.delay(1);
92             }
93             M5.Mic.end();
94             M5.Speaker.begin();
95         }
96     }
97
98     if (auto_playback && M5.Speaker.isEnabled()) {
99         M5.Speaker.playRaw(rec_data, record_size, record_samplerate, false, 1, 0);
100         do {
101             M5.delay(1);
102             M5.update();
103         } while (M5.Speaker.isPlaying());

```

```
104
105     M5.Speaker.end();
106     M5.Mic.begin();
107     auto_playback = false;
108 }
109
110 M5.delay(1);
111 }
```

Example description: Press button A to start recording via the microphone, and release the button to stop. Playback begins automatically as soon as recording stops.



API

The PaperColor Mic section uses **Mic_Class** and **Speaker_Class** from the **M5Unified** library. For additional related APIs, refer to the documentation below:

- [M5Unified - Mic Class](#)
- [M5Unified - Speaker Class](#)