FRAIMIC

LED Behavior Reference Guide

Version 1.4 Last Updated: February 2026

Your Complete Guide to Understanding Device Status Indicators

📋 TABLE OF CONTENTS

GETTING STARTED

1. How to Read This Guide
2. Quick Color Reference

FIRST TIME USER

3. First-Time Setup
    - Needs WiFi Configuration
    - Needs Registration
    - Waiting for Email Verification
    - Access Point Mode Active
4. Connecting to WiFi
    - Successful Connection
    - WiFi Error Patterns (1-3 blinks)
5. First Time User Troubleshooting

EXISTING USER

6. Waking Up Your Device
    - Button Press Response
    - Device Power On
    - Charging States
7. Recording Your Voice
    - Normal Recording
    - Recording Too Long
    - Microphone Errors
8. Downloading New Images
    - Successful Download
    - Download Failed
9. Complete Workflow: Voice to Image
10. Automatic Display Refresh
11. Existing User Troubleshooting

REFERENCE

12. Errors & Problems
13. Quick Support Decision Table
14. Version History

How to Read This

- **Color bars** 🔴🔴🔴🔴 = LED stays that color continuously
- **Color with spaces** 🔵 🔵 🔵 = LED blinks that color on and off
- **Wave symbols** ◐◑◐ = LED breathes/fades in and out
- **Longer bars** = Stays on longer

WAKING UP YOUR DEVICE

Pressing the Button (Device Asleep)

Duration: 0.5 seconds **What to Tell Users:** "Green flash confirms the device heard your button press" **Support Notes:** ✅ Normal behavior - no action needed

```
🟢  →  ⚫
Green   Off
flash   (ready)
(0.5s)

"Button press confirmed — ready to record or download"
```

Device Powers On

Duration: 1 second **What to Tell Users:** "White pulse means device is starting up" **Support Notes:** ✅ Normal boot sequence - no action needed

```
⚪⚪⚪⚪  →  ⚫
White       Off
pulse       (ready)
(1s)

"Starting up... ready!"
```

Device Going to Sleep

Duration: 5 seconds (2s hold + 3s fade) **What to Tell Users:** "White light fading out means the device is entering deep sleep mode" **Support Notes:** ✅ Normal sleep sequence - shown when using fraimic.local/action?mode=sleep or auto-sleep timeout

```
⚪⚪⚪⚪⚪◐◑...⚫
White hold     Fade out    Off
(2 seconds)    (3 seconds)  (sleeping)

"Entering sleep mode... goodnight!"
```

Charging (Cable Connected)

Duration: Continuous while charging **What to Tell Users:** "Pulsing green means the charging cable is connected and the battery is charging" **Support Notes:** ✅ Normal charging behavior - device stays awake while charging

```
🟢 ◐◐◐◐🟢 ◐◐◐◐🟢 ◐◐◐◐🟢   (continuous)
Green pulse / breathing

"Charging your device..."
```

Battery Fully Charged

Duration: Continuous while cable connected and battery full **What to Tell Users:** "Solid green means the battery is fully charged. You can unplug the cable." **Support Notes:** ✅ Normal - battery reached full charge (≥4.10V stable for 5+ minutes)

```
🟢🟢🟢🟢🟢🟢🟢🟢🟢🟢🟢🟢🟢🟢🟢🟢   (continuous)
Green solid

"Fully charged!"
```

RECORDING YOUR VOICE

Normal Recording

Duration: 10-60 seconds (user controlled) + 1.5s confirmation **What to Tell Users:** "Speak while the red light is solid. Press button again when done. Three green blinks means we got your voice!" **Support Notes:** ✅ Normal operation - no action needed

```
🟢  →  🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴  →  🟢  🟢  🟢  →  ⚫
Green   Red solid (you control)     Green blinks   Off
flash   (10–60 seconds)             (1.5s)         (processing)
(0.5s)

"Press → Recording your voice → Press to stop → Got it! → Creating your
image..."
```

Cancel Recording (Triple-Tap)

Duration: Recording + 1.2s cancellation **What to Tell Users:** "Tap button 3 times quickly during recording to cancel and start over without uploading" **Support Notes:** ✅ User-initiated cancel - no upload occurs, device returns to ready state

```
🟢  →  🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴  →  🟠  🟠  🟠  →  ⚫
Green   Red solid (tap tap tap)     Orange blinks  Off
flash   (during recording)          (1.2s)         (ready)
(0.5s)
```

```
"Press → Recording → Triple-tap to cancel → Cancelled! → Ready for next
recording"
```

Recording Too Long (60 Second Limit)

Duration: 60 seconds + 5 seconds error indication **What to Tell Users:** "Recording automatically stops at 60 seconds. Red blinking means it timed out. Try recording a shorter message." **Support Notes:** ✅ Normal timeout behavior - ask user to keep recordings under 60 seconds

```
🟢  →  🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴🔴  →  🔴  🔴  🔴  🔴  →  ⚫
Green   Red solid for 60 seconds          Red fast blink      Off
flash   (automatic timeout)               (5s error)          (stopped)
(0.5s)

"Press → Recording... → Too long! Auto-stopped"
```

Microphone Not Working

Duration: 3 seconds **What to Tell Users:** "Red and white flashing together means there's a hardware problem with the microphone. Please contact support." **Support Notes:** 🚨 **ESCALATE TO TECH** - Hardware failure, device needs service/replacement

```
🟢  →  🔴⚪🔴⚪🔴⚪🔴⚪🔴⚪  →  ⚫
Green   Red/White alternating   Off
flash   (3s hardware error)     (failed)
(0.5s)

"Press → MICROPHONE HARDWARE ERROR → Contact support"
```

CONNECTING TO WiFi

Successful Connection

Duration: 3-10 seconds **What to Tell Users:** "Blue blinking means it's connecting to WiFi. Green flash means success!" **Support Notes:** ✅ Normal connection - no action needed

```
🔵  🔵  🔵  🔵  🔵  →  🟢  →  ⚫
Blue blink (1s on/off)      Green  Off
(3-10 seconds)              flash  (connected)
                            (0.5s)

"Connecting to WiFi... → Connected!"
```

WiFi Failed - Auth/Connection Error (1 blink)

Duration: 30s error pattern, then red fast blink (AP mode) **What to Tell Users:** "One red blink means a connection or password error. Device will enter setup mode so you can fix it." **Support Notes:** ⚠ User-fixable - guide them to setup page to re-enter WiFi password

```
🔵 🔵 🔵 🔵 → 🔴 🔴 🔴 🔴 🔴 → 🔴 🔴 🔴 🔴
Blue blink            Red 1-blink + pause (repeats)     Red fast blink
(trying)              (30 seconds)                      (AP mode active)

"Connecting... → ERROR: 1 blink = Auth/connection error → Setup mode
active"
```

WiFi Failed - Network Not Found (2 blinks)

```
🔵 🔵 🔵 → 🔴 🔴 🔴 🔴 🔴 🔴 🔴 🔴 → 🔴 🔴 🔴 🔴
Blue blink       Red 2-blinks + pause (repeats)             Red fast
blink
(trying)         (30 seconds)                               (AP mode
active)

"Connecting... → ERROR: 2 blinks = Network not found → Setup mode active"
```

WiFi Failed - Other Error (3 blinks)

```
🔵 🔵 🔵 → 🔴 🔴 🔴 🔴 🔴 🔴 🔴 🔴 🔴 → 🔴 🔴 🔴 🔴
Blue blink       Red 3-blinks + pause (repeats)             Red fast
blink
(trying)         (30 seconds)                               (AP mode
active)

"Connecting... → ERROR: 3 blinks = Other error → Try restart → Setup mode"
```

FIRST-TIME SETUP

Needs WiFi Configuration

```
🔵 🔵 🔵 🔵 🔵 🔵 🔵 🔵 (continuous)
Blue slow blink (2s on/off)

"First time setup - connect to 'FraimicSetup' WiFi network"
```

Needs Registration

```
🟣 ◐◐◐◐◐ 🟣 ◐◐◐◐◐ 🟣 ◐◐◐◐◐ 🟣 ◐◐◐◐◐  (continuous)
Purple breathe (3s cycles)

"Visit fraimic.local/register in your browser to set up account"
```

Waiting for Email Verification

```
🟣  🟣  🟣  🟣  🟣  🟣  🟣  🟣  🟣  (continuous)
Purple fast blink (1s on/off)

"Check your email and click the verification link"
```

Access Point Mode Active

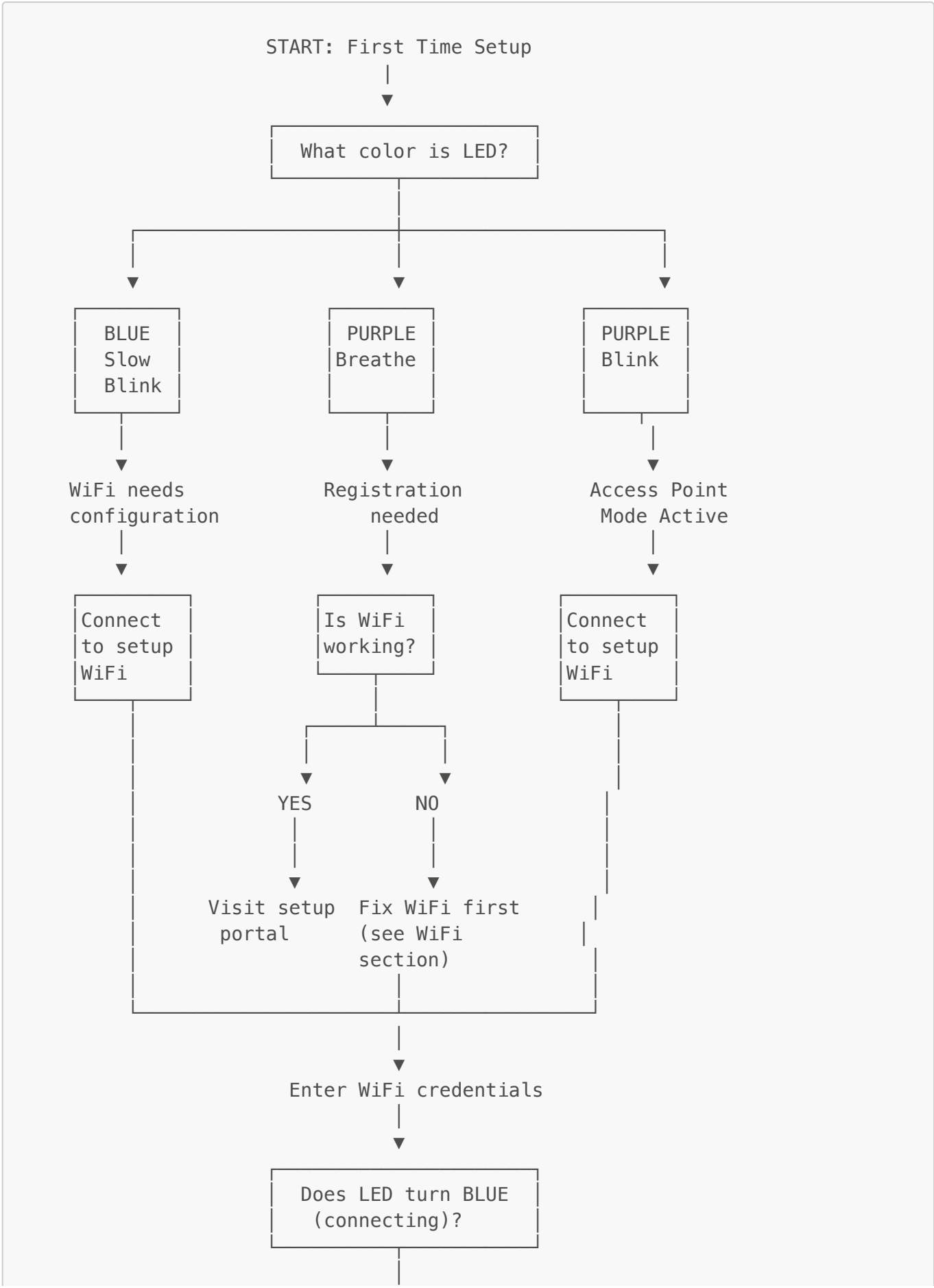
Duration: Continuous until configured **What to Tell Users:** "Connect to 'FraimicSetup' WiFi network with your phone to configure the device" **Support Notes:** ✅ Normal first-time setup - guide user through setup portal

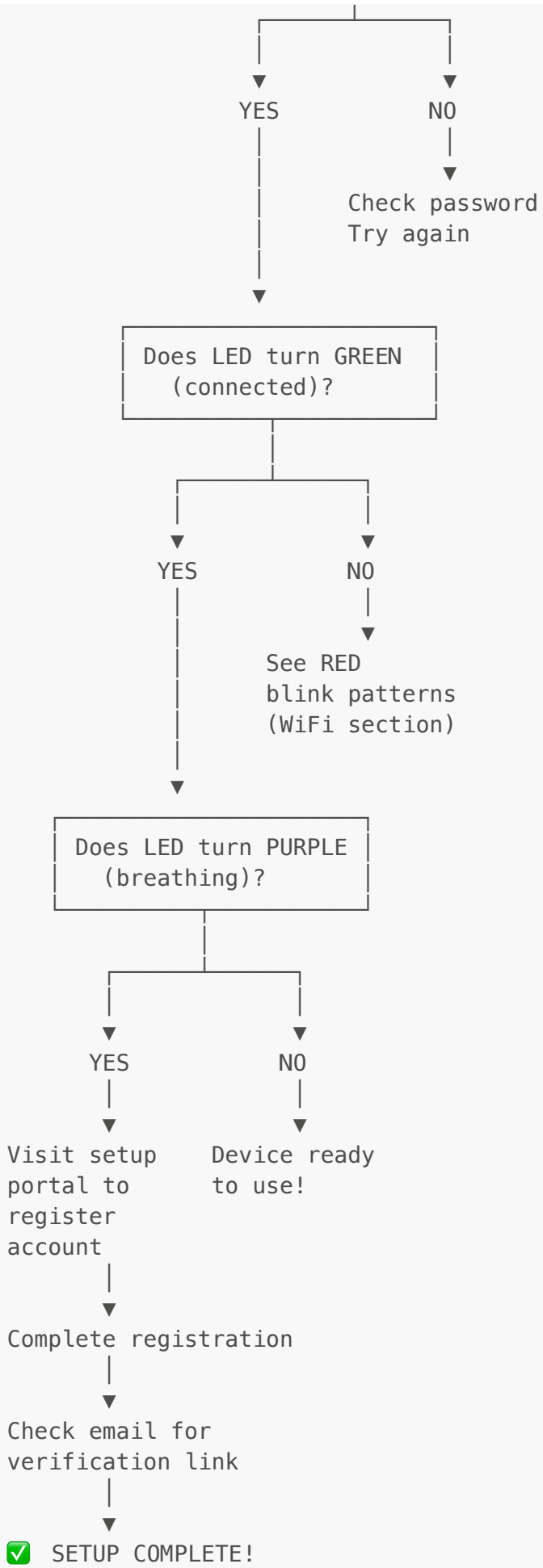
```
🟣     🟣     🟣     🟣     🟣     🟣     🟣  (continuous)
Purple blink (1s cycle)

"'FraimicSetup' WiFi network is active – connect with your phone"
```

FIRST TIME USER TROUBLESHOOTING

Use this flowchart if the device is brand new or has been reset




YES
NO
Check password
Try again
Does LED turn GREEN
(connected)?
YES
NO
See RED
blink patterns
(WiFi section)
Does LED turn PURPLE
(breathing)?
YES
NO
Visit setup
portal to
register
account
Device ready
to use!
Complete registration
Check email for
verification link
✅ SETUP COMPLETE!

DOWNLOADING NEW IMAGE FROM SERVER

Successful Download

```
🔵 🔵 🔵 → ⚪ ◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐ → 🟢 🟢 → ⚫
Blue 3-blink    White breathe (5s cycles)    Green      Off
(2s)           (30-60 seconds)              double     (displayed)
                                            flash
                                            (1s)

"New image ready! → Downloading and processing → Done! → On your display"
```

Download Failed

```
🔵 🔵 🔵 → ⚪ ◐◐◐◐◐ → 🔴 🔴 🔴 🔴 🔴 → ⚫
Blue 3-blink    White         Red fast blink          Off
(2s)           breathe        (10s error)             (failed)
                (trying)

"New image ready! → Downloading... → ERROR: Download failed"
```

COMPLETE WORKFLOW: YOUR VOICE BECOMES AN IMAGE

Voice to Display Journey

```
🟢 → 🔴🔴🔴🔴🔴🔴🔴🔴 → 🟢 🟢 🟢 →
⚪ ◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐◐ → 🟢 🟢 → ⚫
Green   Red solid          Green          White breathe
Green    Off
flash   (10-30s)          3-blink        (60-120 seconds)
double   (done)
(0.5s)                    (1.5s)
flash

(1s)

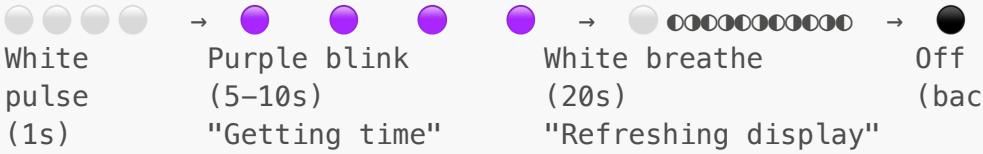
Step-by-step:
1. Tap button → Green flash (confirmed)
2. Talk while red light is solid (10-30 seconds)
3. Tap again → Green blinks 3 times (captured your voice!)
4. White breathing (1-2 minutes):
   • Uploading your recording
   • AI creating your image
   • Downloading the artwork
```

```
   • Rendering to display
5. Green double-flash → Your image is live!
```

AUTOMATIC DISPLAY REFRESH (Every 3 Days)

Scheduled Wake at 3 AM

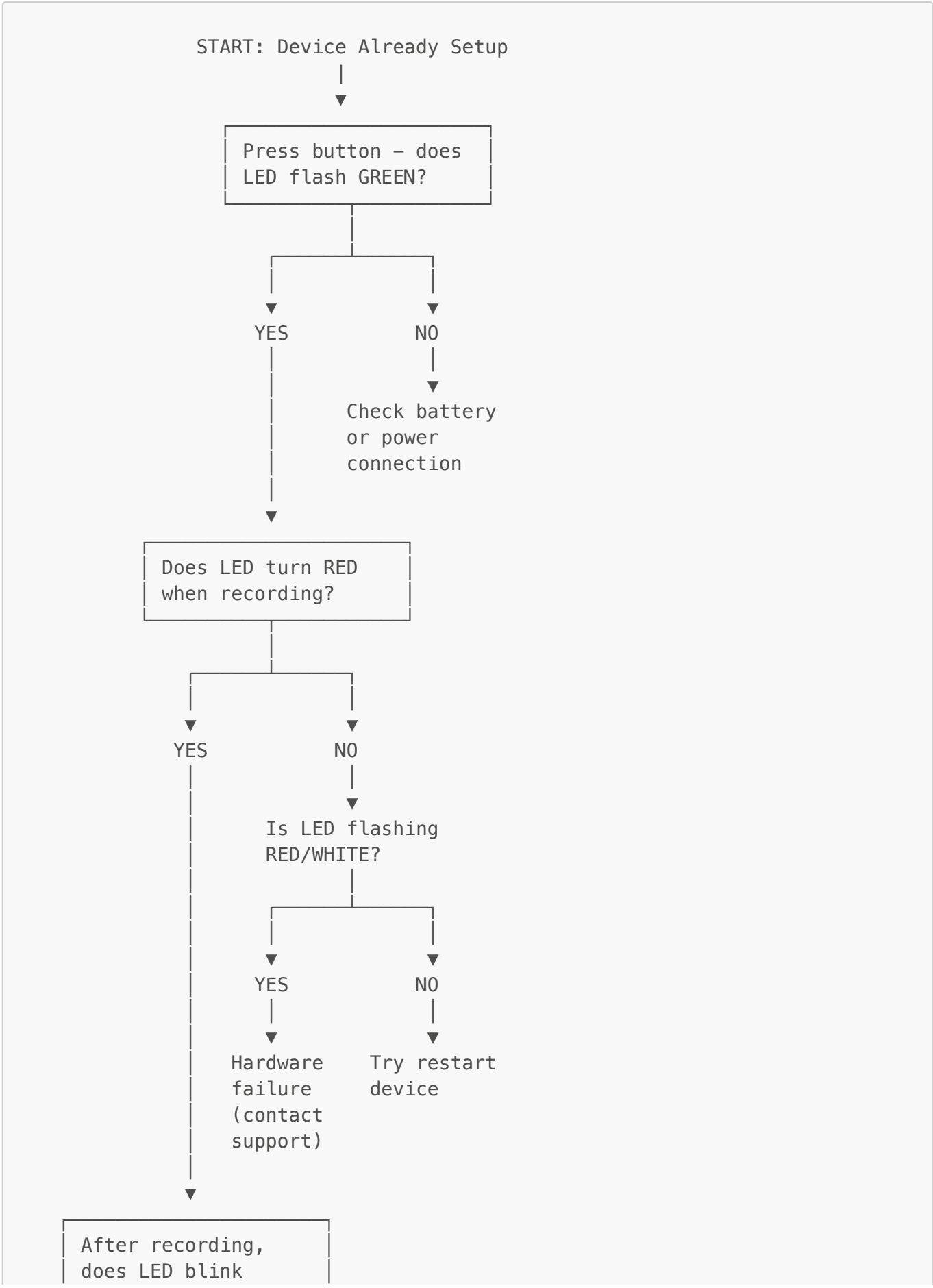
Duration: ~30 seconds total **What to Tell Users:** "Device automatically wakes every 3 days to refresh the display and prevent ghosting" **Support Notes:** ✅ Normal automatic maintenance - no action needed

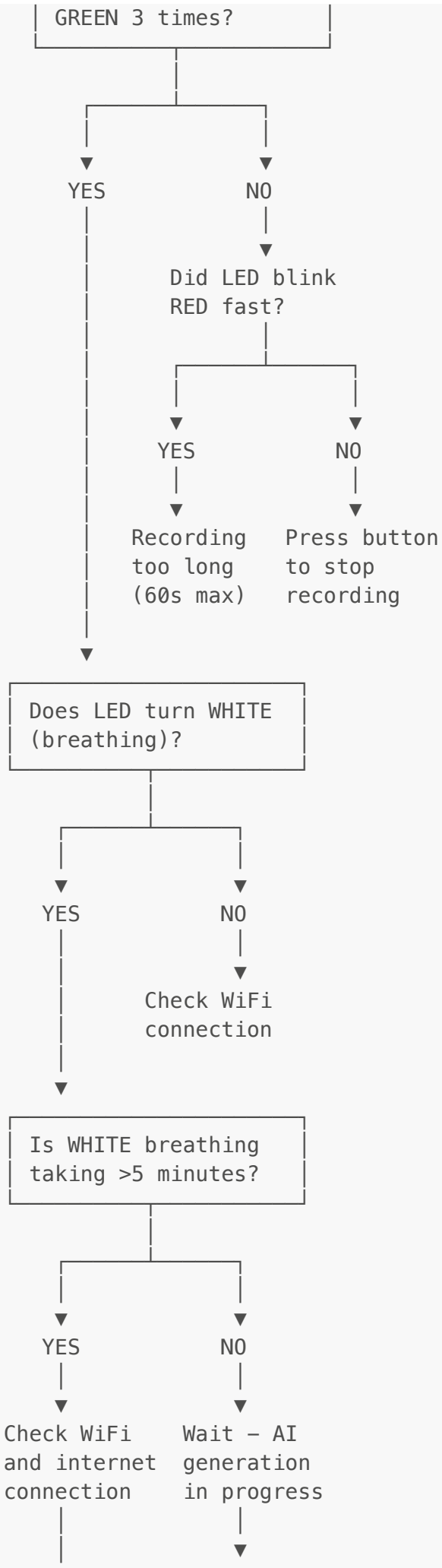


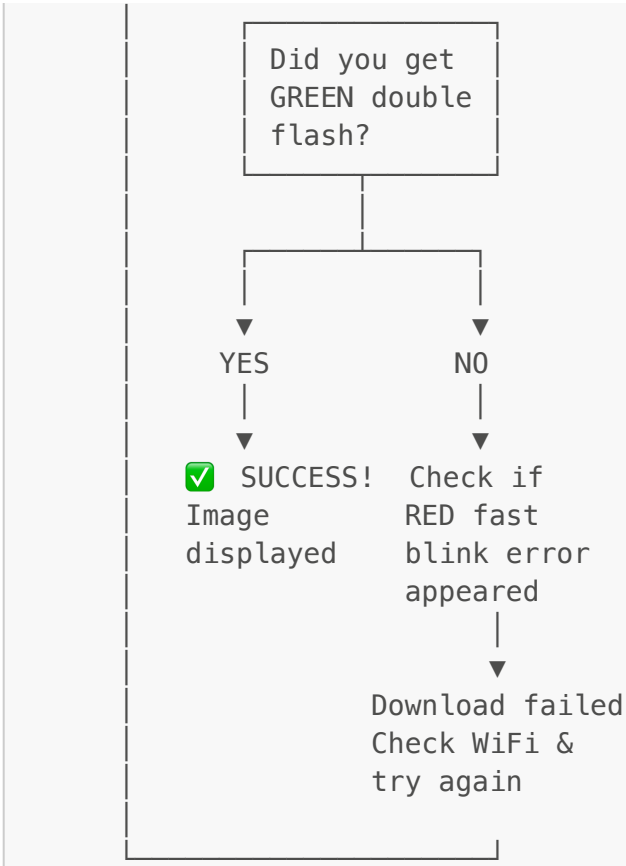

```
"Device wakes → Syncs time → Refreshes display to prevent ghosting →
Sleeps for 3 days"
```

EXISTING USER TROUBLESHOOTING

Use this flowchart for devices that have already been set up




GREEN 3 times?
YES
NO
Did LED blink RED fast?
YES
NO
Recording too long (60s max)
Press button to stop recording
Does LED turn WHITE (breathing)?
YES
NO
Check WiFi connection
Is WHITE breathing taking >5 minutes?
YES
NO
Check WiFi and internet connection
Wait – AI generation in progress


Did you get
GREEN double
flash?
YES
NO
✅ SUCCESS!
Image
displayed
Check if
RED fast
blink error
appeared
Download failed
Check WiFi &
try again

ERRORS & PROBLEMS

General System Error

```
🔴  🔴  🔴  🔴  🔴  🔴  🔴  🔴  🔴  🔴  → ⚫
Red fast blink (200ms on/off)                    Off
(10 seconds)

"CRITICAL ERROR – Try restarting device if it keeps happening"
```

Microphone Hardware Problem

```
🔴⚪🔴⚪🔴⚪🔴⚪🔴⚪🔴⚪🔴⚪🔴⚪  → ⚫
Red/White alternating (200ms)      Off
(3 seconds)

"MICROPHONE HARDWARE FAILURE – Contact support"
```

Background Service Issue

```
🟠  🟠  🟠  🟠  🟠  🟠  → ⚫
Orange blink (500ms)              Off
(3 seconds)

"Minor background issue – Device still works fine"
```

Recording Cancelled/Aborted

```
🟢  → 🔴🔴🔴🔴  → 🟡🟡🟡🟡  → ⚫
Green   Red solid   Yellow solid  Off
flash   (started)   (2s)          (cancelled)
(0.5s)

"Recording started → Interrupted/Cancelled by system"
```

Recording Processing Errors

After recording completes (green 3x blinks) and white breathing starts, if something goes wrong, count the **RED BLINKS** between pauses:

1 Red Blink = WiFi Disconnected

```
🔴 ── 🔴 ── 🔴 → ⚫
1 red blink + pause (pattern repeats 30s)

"WIFI DISCONNECTED – Check WiFi connection and retry"
```

What: Device lost WiFi connection during processing **Why**: WiFi router down, out of range, or network issue **Action**: Check WiFi router is on and device is in range, press button to retry

2 Red Blinks = Server Issue

```
🔴🔴 ── 🔴🔴 ── 🔴🔴 → ⚫
2 red blinks + pause (pattern repeats 30s)

"SERVER ISSUE – Wait 5 minutes and retry, or contact support"
```

What: Server authentication, busy, or error (WiFi is connected) **Why**: Server authentication failed, server overloaded, or server error **Action**: Wait 5 minutes and retry; if persists after 3 attempts, contact support

3 Red Blinks = Download Failed

```
🔴🔴🔴 ── 🔴🔴🔴 ── 🔴🔴🔴 → ⚫
3 red blinks + pause (pattern repeats 30s)

"DOWNLOAD FAILED – Check WiFi, press button to retry"
```

What: AI-generated image couldn't download **Why**: Network issue or server timeout **Action**: Check WiFi, press button (device will check for pending image)

4 Red Blinks = Display Error

```
🔴🔴🔴🔴 ── 🔴🔴🔴🔴 ── 🔴🔴🔴🔴 → ⚫
4 red blinks + pause (pattern repeats 30s)

"DISPLAY ERROR – Restart device or contact support"
```

What: Image couldn't show on screen **Why**: Display hardware issue or corrupted data **Action**: Restart device (unplug/replug power), contact support if persists

Note: Both WiFi errors (during startup) and processing errors (after recording) use **RED blinks**. Context tells them apart: red blinks on startup = WiFi issue, red blinks after recording = processing issue.

QUICK COLOR REFERENCE

What You See	What It Means
🟢 Green flash	Success! Button press, connected, complete
🔴🔴🔴🔴 Red solid	Recording your voice right now
🔵 🔵 Blue blink	Connecting to WiFi or downloading
⚪ ◐◐◐ White breathe	Processing, creating, or rendering
🟣 ◐◐◐ Purple breathe	Needs registration or setup
🔴 🔴 🔴 Red counted blinks	WiFi or processing error - count the blinks!
🟣 🟣 Purple blink	AP mode / setup mode active
🟢 ◐◐◐ Green pulse	Charging (cable connected)
🟢🟢🟢🟢 Green solid	Battery fully charged
⚫ Off	Ready and waiting

TROUBLESHOOTING

Red blinks during WiFi connection?

- Count the blinks between pauses:
  - **1 blink** = Auth/connection error (check password)
  - **2 blinks** = Network not found (check SSID)
  - **3 blinks** = Other error (restart device)

Red blinks after recording?

- Count the blinks between pauses:
  - **1 blink** = WiFi disconnected (check router, retry)
  - **2 blinks** = Server issue (wait 5 min, retry)
  - **3 blinks** = Download failed (check WiFi, retry)
  - **4 blinks** = Display issue (restart/support)

Purple breathing forever?

- Visit **fraimic.local/register** to set up your account

Red and white flashing?

- Microphone hardware broken - contact support

How do I know recording worked?

- Green blinks 3 times = It captured your voice!

White breathing for 2 minutes?

- Normal! Creating your AI image takes time

📊 QUICK SUPPORT DECISION TABLE

LED Pattern	Duration	User Action	Support Action	Escalate?
🟢 Any pattern	Any	None needed	"Working correctly"	❌ No
🔴 Solid	10-60s	Keep recording	"Normal recording"	❌ No
🔴 Fast blink	5-10s	Wait/Restart	"Restart device"	⚠ If persists
🔴⚪ Alternating	3s	Contact support	"Hardware issue"	✅ **Yes**
🔵 Blinking	3-10s	Wait	"Connecting to WiFi"	❌ No
🔴 1 blink pattern	30s	Check WiFi password	"Auth/connection error"	❌ No
🔴 2 blinks pattern	30s	Check network name	"Network not found"	❌ No
🔴 3 blinks pattern	30s	Restart device	"Other WiFi error"	⚠ If persists
🔴 1 blink pattern	30s	Check WiFi router	"WiFi disconnected"	⚠ If WiFi OK
🔴 2 blinks pattern	30s	Wait 5 min, retry	"Server issue"	⚠ After 3 attempts
🔴 3 blinks pattern	30s	Check WiFi, retry	"Download failed"	⚠ If persists
🔴 4 blinks pattern	30s	Restart device	"Display issue"	✅ **Yes**
⚪ Breathing	1-2 min	Wait	"Creating AI image"	❌ No
⚪ Breathing	>5 min	Check WiFi	"Stuck processing"	✅ **Yes**
🟣 Breathing	Continuous	Visit setup page	"Needs registration"	❌ No
🟣 Purple blink	Continuous	Connect to setup WiFi	"AP mode active"	❌ No
🟢 Green pulse	Continuous	None needed	"Charging"	❌ No
🟢 Green solid	Continuous	None needed	"Battery full"	❌ No

📝 VERSION HISTORY

Version	Date	Changes

Version	Date	Changes
1.4	February 2026	Documentation audit: Fixed WiFi config LED (orange→blue), deep sleep LED (pulse→fade-out), AP mode (yellow→purple), WiFi failure fallback (yellow→red fast blink), display refresh time (10AM→3AM). Added charging states (pulsing green, solid green). Updated flowcharts and reference tables.
1.3	February 2026	WiFi error LEDs changed from orange to red, simplified from 5 categories to 3 (auth/connection, not found, other). Duration increased to 30s, transitions to red fast blink AP mode.
1.2	October 2025	Updated diagnostic codes: 1 blink now indicates WiFi disconnected, 2 blinks indicates server issue (auth, busy, error). Improved remote diagnostics for network vs. server problems.
1.1	October 2025	Added diagnostic red blink error codes (1-4 blinks) for recording processing errors: upload, auth/config, download, and rendering failures
1.0	October 2025	Initial release with comprehensive LED patterns, First Time User and Existing User troubleshooting flowcharts

Now you speak LED! 💡

For troubleshooting, use the First Time User or Existing User flowcharts