Web of Things at FOSDEM 2026

Web of Things is a set of standards for Internet of Things use cases. At the Matrix Hackathon and FOSDEM 2026, I intend to let people experiment with the following hardware. I support Web of Things via HTTP and Websockets.

Receipt printer

- Epson TM-T20III
- Native colors: 1-bit
  - `#ffffff` (white)
  - `#000000` (black)
- Native resolution: 576 pixels wide, any height (will be converted to be divisible by 8 pixels)
- Supported image formats: PNG (best results), JPG

URLs

Use these URLs to prepare for the event or test your scripts. They will not print anything.

- Test URL for images: https://wot-wrench.chrpaul.de/#try=https://wot-why.jaller.de/receipt-printers-for-events/photo
  - Thing Description: https://wot-why.jaller.de/receipt-printers-for-events/photo
- Test URL for text: https://wot-wrench.chrpaul.de/#try=https://wot-why.jaller.de/receipt-printers-for-events/text
  - Thing Description: https://wot-why.jaller.de/receipt-printers-for-events/text

The final URLs will be published at the Matrix Hackathon.

Code examples

Bash:

```
curl -X POST \
  -H "Content-Type: application/json" \
  --data "{\"image\":\"$(base64 image.png | tr -d '\n')\"}" \
  https://wot-why.jaller.de/receipt-printers-for-events/photo/actions/print-photo
```

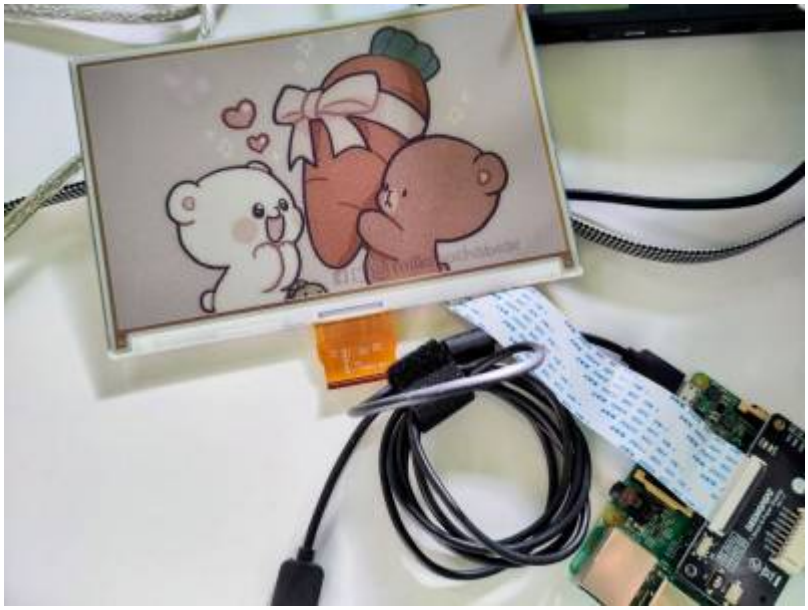
Or in NodeJS / Bun / Deno:

```
import { readFile } from "node:fs/promise";

const image = await readFile("image.png");
const response = await
fetch("https://wot-why.jaller.de/receipt-printers-for-events/photo/actions/print-photo", {
  method: "POST",
  headers: {
    "Content-Type": "application/json",
  },
  body: JSON.stringify({
    image: image.toString("base64"),
  }),
});

if (!response.ok) {
  throw Error(`Failed to upload image. HTTP ${response.status}`);
}
```

E-paper screen



- 7.3inch ACeP 7-Color E-Paper Display
- Native colors: 7 colors
  - `#000000` (black)
  - `#ffffff` (white)
  - `#ff0000` (red)
  - `#00ff00` (green)
  - `#0000ff` (blue)
  - `#ffff00` (yellow)
  - `#ff8000` (orange)
- Native resolution: 800×480 pixels
- Supported image formats: PNG (best results), JPG

URLs

Use these URLs to prepare for the event or test your scripts. They will not display anything on the screen, but the Thing has a preview property.

- Test URL: https://wot-wrench.chrpaul.de/#try=https://wot.chrpaul.de/image-storage/fosdem
  - Thing Description: https://wot.chrpaul.de/image-storage/fosdem

The final URLs will be published at the Matrix Hackathon.

Code Examples

To upload a local PNG file `image.png` via a Bash:

```
curl -X PUT \
  -H "Content-Type: application/json" \
  --data "\"$(base64 image.png | tr -d '\n')\"" \
  https://wot.chrpaul.de/image-storage/fosdem/properties/image
```

Or in NodeJS / Bun / Deno:

```
import { readFile } from "node:fs/promise";

const image = await readFile("image.png");
const response = await
fetch("https://wot.chrpaul.de/image-storage/fosdem/properties/image", {
  method: "PUT",
  headers: {
    "Content-Type": "application/json",
  },
  body: JSON.stringify(image.toString("base64")),
});

if (!response.ok) {
  throw Error(`Failed to upload image. HTTP ${response.status}`);
}
```

Dithering

Images will be resized and dithered automatically. However, if you want full control over the result, you can send images in the right resolution using only the supported color palette.

For TypeScript, I recommend using my fork of dither-me-this. It supports custom color palettes which is optimal for the e-paper screens. Previously, I used my fork of canvas-dither. Its API is easier and more mature, but it only supports 1-bit dithering. It's most suitable for the receipt printer.

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