

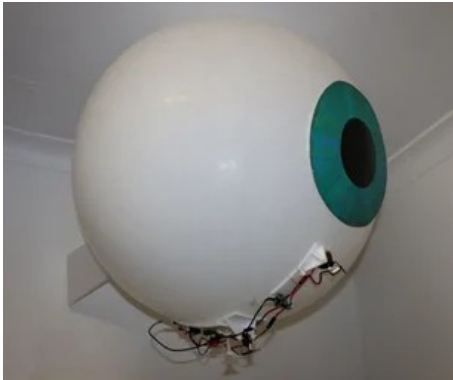
Fri3d 2024

Bestuur je “things” met een smartphone,
ook zonder internet

FedericoBusero

MasynMachien things

- <https://www.masynmachien.be/>
 - Workshop hovercrafts
 - RC Car, Bootjes, blimp (zeppelin), ...
 - Probleem : remote control & workshops



Draadloos protocol: Wifi & Bluetooth

- 4G te duur voor workshops
- Bluetooth: specifieke app nodig
 - BLE
 - Connectieproblemen op makefairs
 - Bluetooth Classic (virtuele seriële poort)
 - Niet op iOS
- Wifi
 - Internet
 - SoftAP: directe verbinding gsm-arduino
 - Access Point, web server, DNS
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Chips

- goedkoop, wifi, klein, licht, vlot, programmeerbaar, verkrijgbaar, goedkoop

- Espressif ESP8266 (Wifi)

- Lolin D1 mini (usb)
- ESP01 (programmer)



- Espressif ESP32-reeks (Wifi + Bluetooth/BLE)

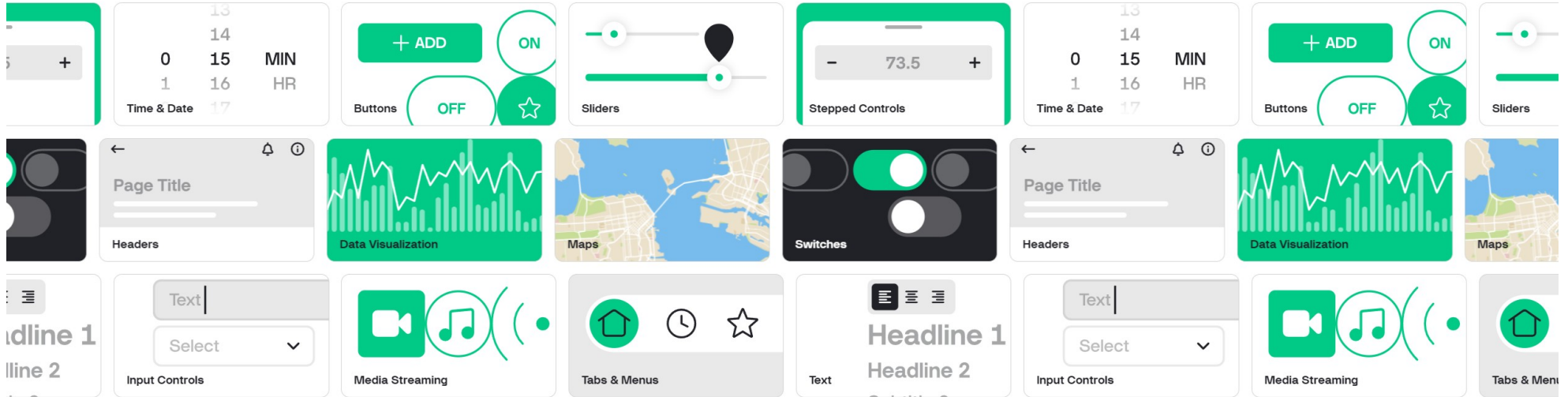
- ESP32
- ESP32C3
 - Supermini



Apps

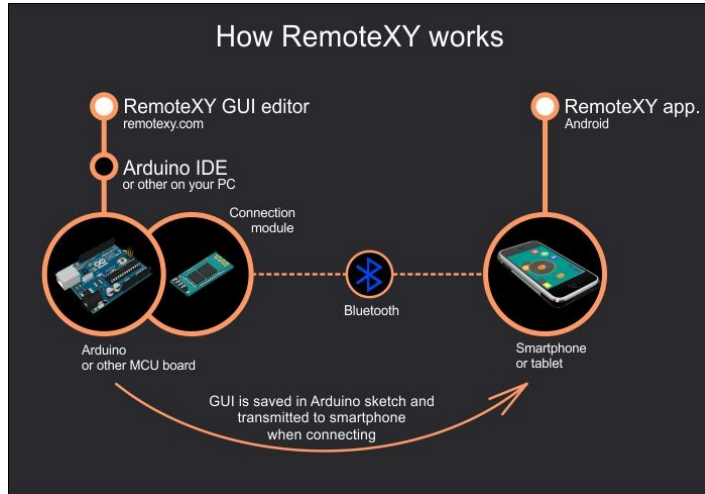
- Zelfgemaakte app
- Toepassings specifieke apps
 - Leds: WLED
 - ...
- Vendor specifiek (Arduino IOT Cloud)
- Generieke maker apps
 - Verschillende Android-only / Bluetooth:
 - Arduino bluetooth controller, ...
- Browser

Blynk (App + Arduino library)



- Android / iOS
- Wifi Internet. Bluetooth niet meer

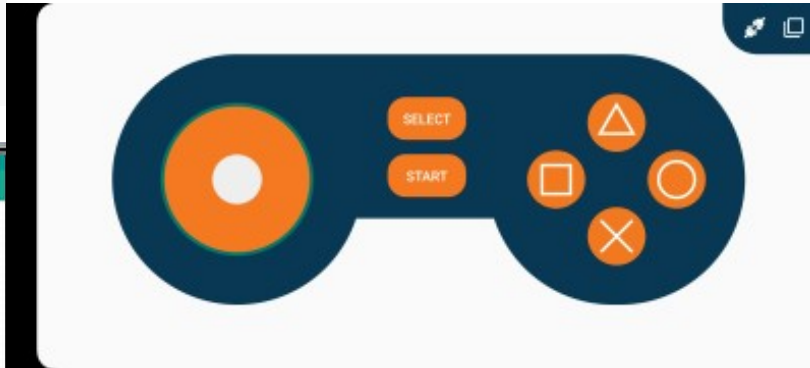
RemoteXY (App + Arduino library)



- IOS + Android
- BLE/Bluetooth/Wifi Internet/Wifi SoftAP
- Russische app

STEMpedia – Dabble (App + Arduino library)

- Vaste user interfaces



Browser (wifi)

- SoftAP of over internet
- HTML manueel (virtuele joystick)
 - Voorbeeld <https://github.com/FedericoBusero/Wifi-Hovercraft-Browser>
- Toepassing: home control
 - ESPHome – Home Assistant; Tasmota, ESPEasy
- Arduino libraries
 - EmbAjax
 - <https://github.com/tfry-git/EmbAJAX>
 - ESPUI
 - <https://github.com/s00500/ESPUI>
 - ESP-Dash
 - <https://espdash.pro/> <https://docs.espdash.pro/>
 - <https://github.com/ayushsharma82/ESP-DASH>



EmbAjax (Arduino library – HTML browser)

- Items
 - Checkboxes
 - Radio buttons (mutually exclusive buttons)
 - Push buttons
 - Sliders
 - Text display
 - Text input
 - Drop down option select
 - RGB Color picker
 - Directional input ("joystick")
 - Static HTML blocks
 - Connection status indicator
- Geen websockets / http overhead

ESPUI (Arduino library – HTML browser)

ESPUITest **Connected**

Basic controls Colours Styled controls Grouped controls **Example** WIFI Credentials

Control and Status

Power

Status
System status: OK

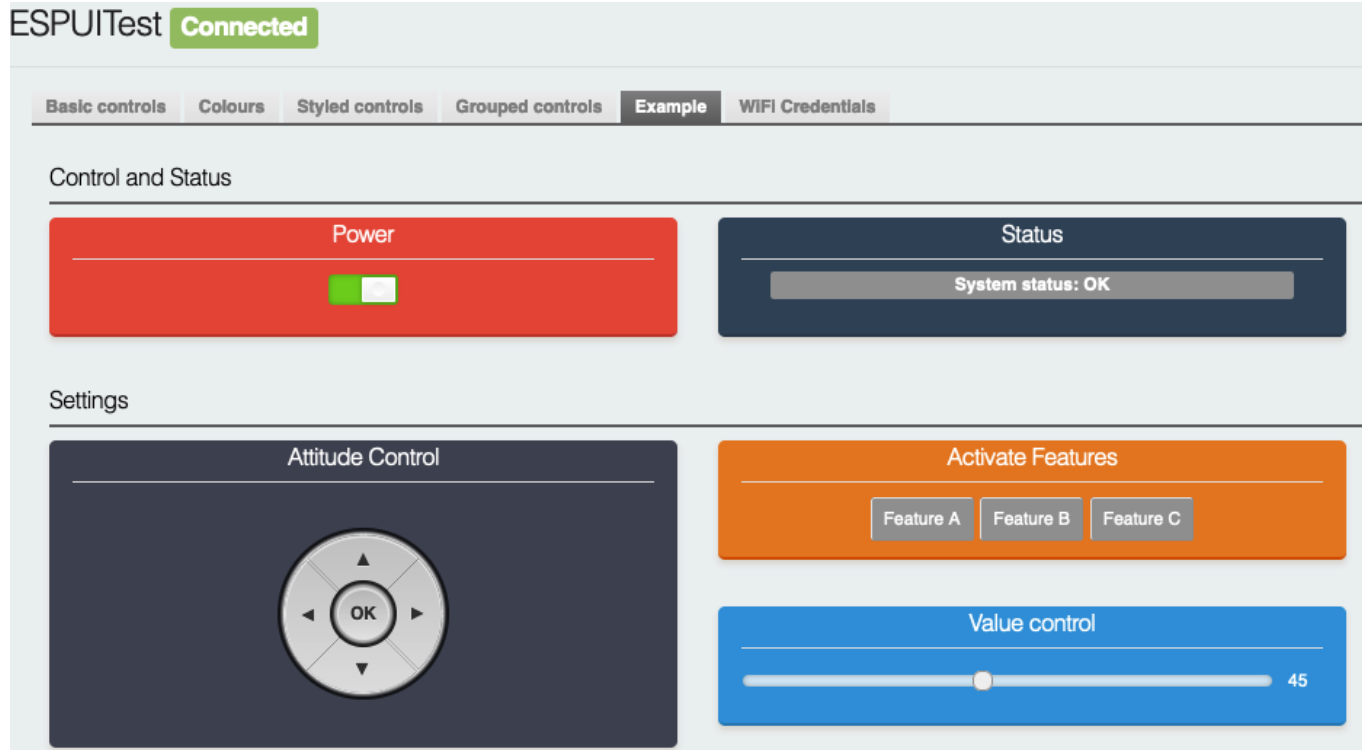
Settings

Attitude Control

Activate Features

Feature A Feature B Feature C

Value control 45

The image shows a screenshot of a web interface for an ESP8266-based device. At the top, it says 'ESPUITest' followed by a green 'Connected' status indicator. Below this is a navigation menu with tabs: 'Basic controls', 'Colours', 'Styled controls', 'Grouped controls', 'Example' (which is selected), and 'WIFI Credentials'. The main content is divided into two sections: 'Control and Status' and 'Settings'. In the 'Control and Status' section, there is a red 'Power' control with a green toggle switch that is currently turned on, and a dark blue 'Status' control showing 'System status: OK'. The 'Settings' section contains a dark blue 'Attitude Control' panel with a circular directional pad and an 'OK' button, an orange 'Activate Features' panel with three buttons labeled 'Feature A', 'Feature B', and 'Feature C', and a blue 'Value control' panel with a horizontal slider set to the value '45'.

ESP-Dash (Arduino library – HTML browser)

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Test Dropdown

- Option3
- Option1
- Option2
- Option3
- Option4

Gas Usage (ms)

Temperature
18 °C

Progress - 90%

Test Button

Color Picker

Test Slider - 0

Test Joystick