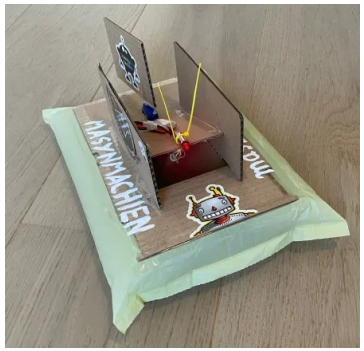
Fri3d 2024

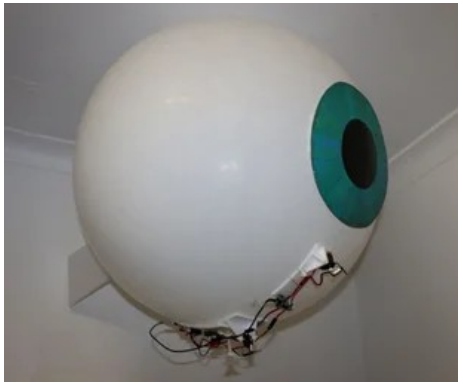
Bestuur je “things” met een smartphone, ook zonder internet

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
    -

Chips

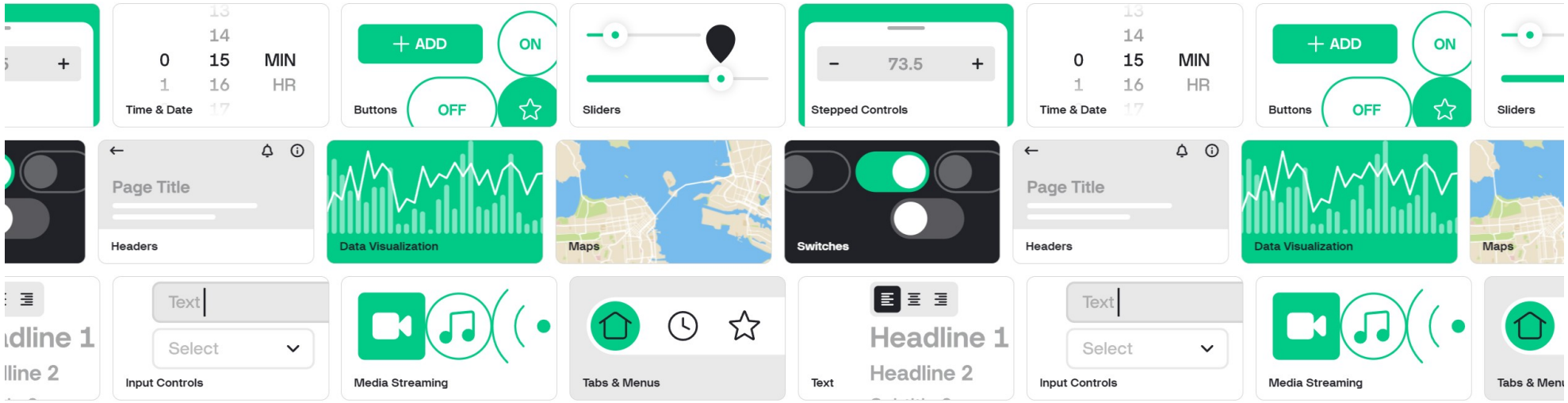
- goedkoop, wifi, klein, licht, vlot, programmeerbaar, verkrijgbaar, goedkoop
- Espressif ESP8266 (Wifi)
  - Lolin D1 mini (usb)
  - ESP01 (programmer)

- Espressif ESP32-reeks (Wifi + Bluetooth/BLE)
  - ESP32
  - ESP32C3
    - Supermini

Apps

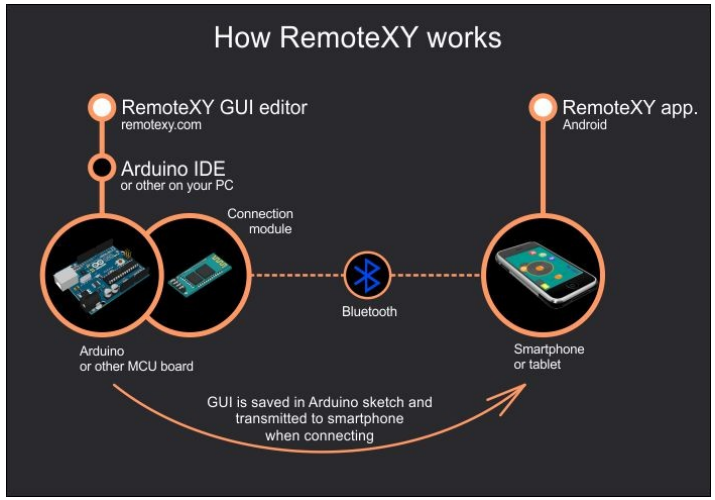
- Zelfgemaakte app
- Toepassingsspecieke apps
  - Leds: WLED
  - ...
- Vendor specifiek (Arduino IOT Cloud)
- Generieke maker apps
  - Verschillende Android-only / Bluetooth:
    - Arduino bluetooth controller, …
- Browser

Blynk (App + Arduino library)



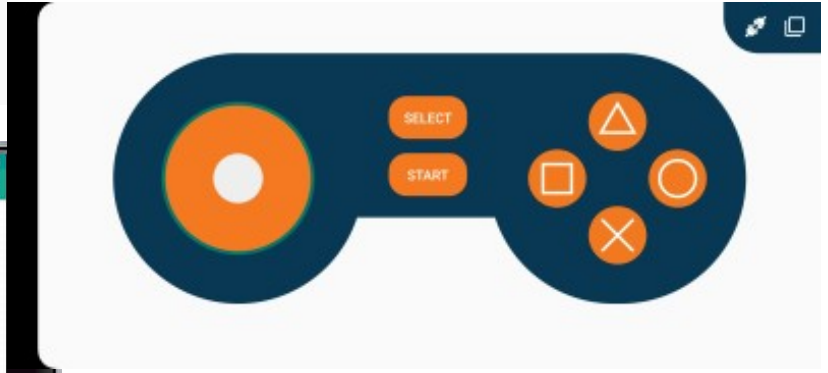
- Android / iOS
- Wifi Internet. Bluetooth niet meer

RemoteXY (App + Arduino library)



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

STEMpedia – Dabble (App + Arduino library)



- Vaste user interfaces

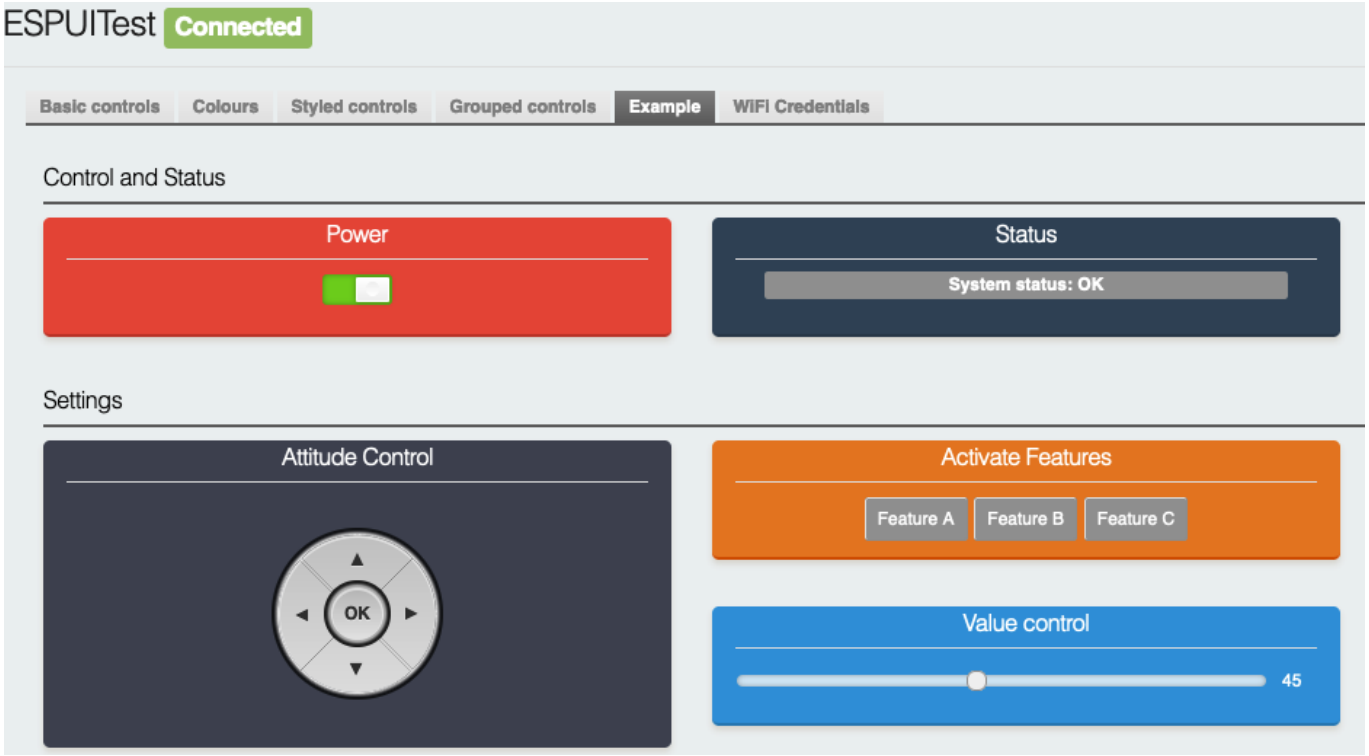
Browser (wifi)

- 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)



ESP-Dash (Arduino library – HTML browser)