Powered by STM32

A stopwatch tells you where your at in racing motorcycles …

NuttX and STM32

Who am I

○ Ben

○ Racing enthousiast (i.a. ONK)

○ System/Software Engineer

○ Digital Architect

○ Data Engineer/Analist
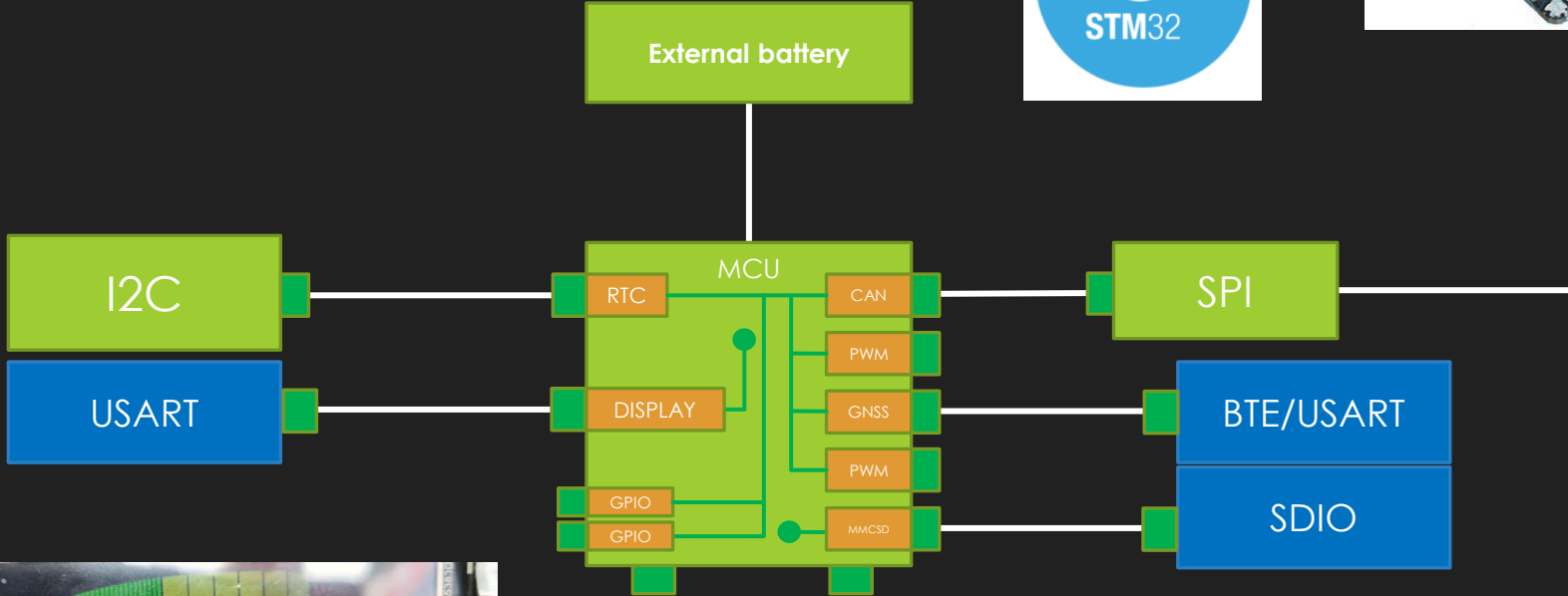
○ NuttX adopter

Photography: Auke Louwes

A big thank you to the Nuttx community and Joey & Jan (testing in real racing conditions)

Laptimer with GPS

- Nextion display (own driver in NuttX)
- NuttX
- STM32F407VE
- GNSS/GPS
- BTE (Bluetooth)
- RTC
- CAN-bus
- Custom made PCB
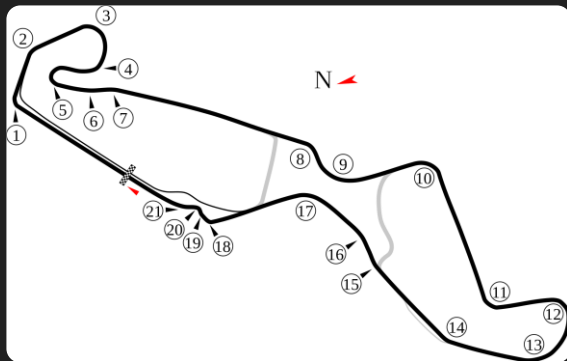- Creality 3D printer
- Yamaha YZF-R6

Global Design

External battery

STM32

MCU
- RTC
- DISPLAY
- GPIO
- GPIO
- CAN
- PWM
- GNSS
- PWM
- MMCSD

I2C

USART

SPI

BTE/USART

SDIO

Why Nuttx for this project?

- Deterministic
- RTOS offering POSIX compliance
- Small footprint
- Open-source
- Simple build process
- Scalable
- It just works…

Why making this functionality?

- Multiple time measurements possible on the track
- Integration with display and data recovery
- Datalogging on board
- Track section determination en insight
- Learning functionality for the driver
- Scalable
- GNSS for line determination
- Integration with the ECU from Yamaha

DEMO

Whats left… & DEMO

○ Making a good mount and case for the Yamaha specific

○ Adding extra functionality in logging and data views (learning purposes)

○ CAN-bus testing (robustness)

○ Improve PCB and connectors (industrial)

○ Use it in training sessions! It has proven its benefits!

(mp4 demo is obtainable)