Page EEPROM for asset tracking
# About asset tracking

## Monitoring and managing physical assets

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*RTLS = Real-Time Localization System
The purpose of asset tracking is to provide **real-time visibility** into the **location** and the **status** of assets.

**Benefits**

- Optimize asset utilization
- Enhance customer service
- Reduce cost

**Localization & Condition**
How to track an asset

GPS tracking system
- + Real-time monitoring
- - Signal interference
- - Investment

Barcode scanner
- + Cost-effective
- - Errors if damaged
- - Line-of-sight to the barcode

RFID
- + Non-line-of-sight environments
- - Interference from other RFID tags
- - Investment
Asset tracking - process

Localization beacon → Wireless communication → Cloud & client server → Software application

Page EEPROM can bring benefits
Asset tracking - block diagram
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- MCU needs to manage many standard protocols
  - BLE
  - LoRa
  - Zigbee
  - NFC
  - Sigfox
  - ...

Need high memory size

Firmware can be stored in a Page EEPROM
- 320 Mbit/s for downloading the firmware in the MCU
- 2.5 s for updating (erase + program) 8 Mbit of firmware
- ECC for high code reliability
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- Lot of sensing to get the asset status
  - Localization
  - Temperature
  - Humidity
  - Speed
  - ...

Need datalogging

Serial Flash limitation*

Datalogging with Page EEPROM

- Write (auto erase + prog) with byte access level
- 2 ms to write 512 bytes
- Endurance 500k cycles/page (x5 vs. Flash)**
- Current peak control below 3 mA to conserve battery life

* Software emulation require
** On full T* range -40 to +105°C
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**Benefits for firmware management**

- MCU manages more wireless protocol
- MCU can have a firmware back-up in the Page EEPROM
- Downtime reduced with Page EEPROM high speed performances

**Benefits for asset status monitoring**

- Simplifying firmware with no need to emulate EEPROM
- High monitoring rate (x5) compared to a Serial Flash
- Ultra low power datalogging to increase battery lifetime
Our technology starts with You

Find out more at st.com/page-eeprom