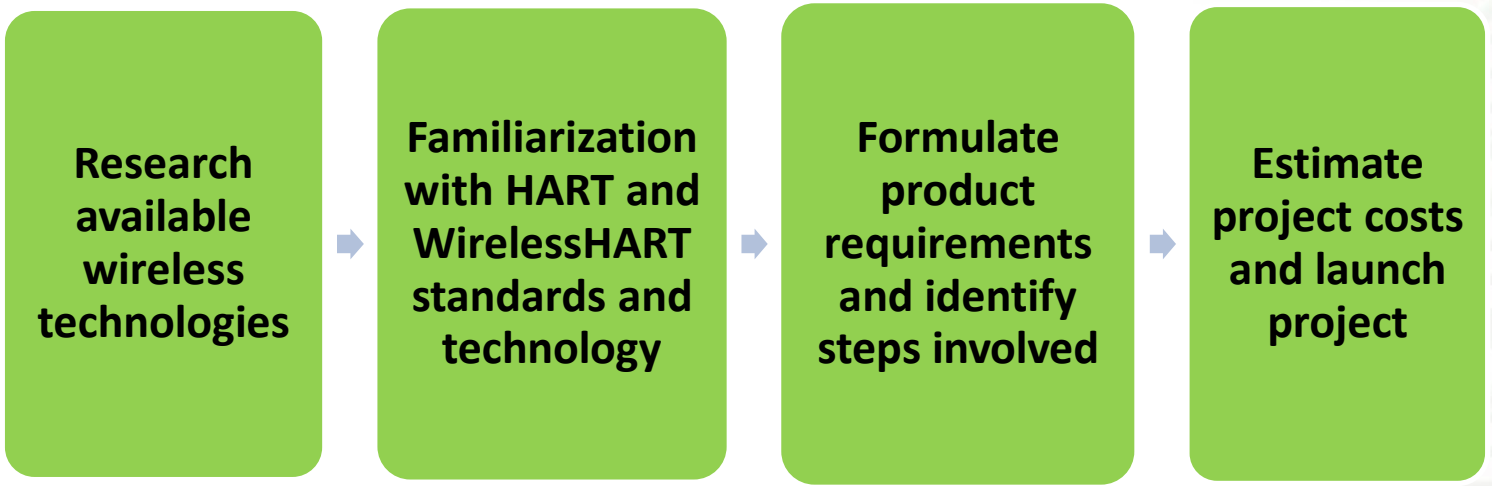
WirelessHART™ Rapid Prototyping Service

centero

Rapid Prototyping Service Overview

- Industrial Internet of Things technologies (IIoT) for process automation are new and complex technologies
- Product development requires cross-disciplinary expertise that a lot of companies do not have in-house
  - HART and WirelessHART standards specification and technology knowledge
  - Wireless (RF) expertise
  - Wireless compliance expertise
  - Hardware + embedded firmware + mechanical engineering capabilities
  - Hazardous area compliance expertise
- Significant effort for developing the instrument specific code that resides on the application processor
- Typical development cycle is 8 – 16 months depending on the level of in-house expertise and available resources

Step 1: Research and Planning



Duration: 2 – 4 months

centero

WirelessHART

Step 2: Development, Validation and Certification

Firmware and Software Track

Firmware Integration

- Integration of third-party stack via API
- WirelessHART compliant APP layer implementation

Software Integration

- Integration with third party vendor's Gateway (DD/CFF)
- Integration with software entities residing on the plant backbone (DCS, client apps)

WirelessHART Certification

- Compliance testing for field instrument

Hardware Track

Hardware Design and Integration

- Integration of third-party wireless module
- Schematics, layout, fab files
- Mechanical design
- Manufacturing, engineering validation

Certification

- Wireless compliance: FCC, IC, ARIB, ETSI etc.
- Safety: UL, ATEX, etc.

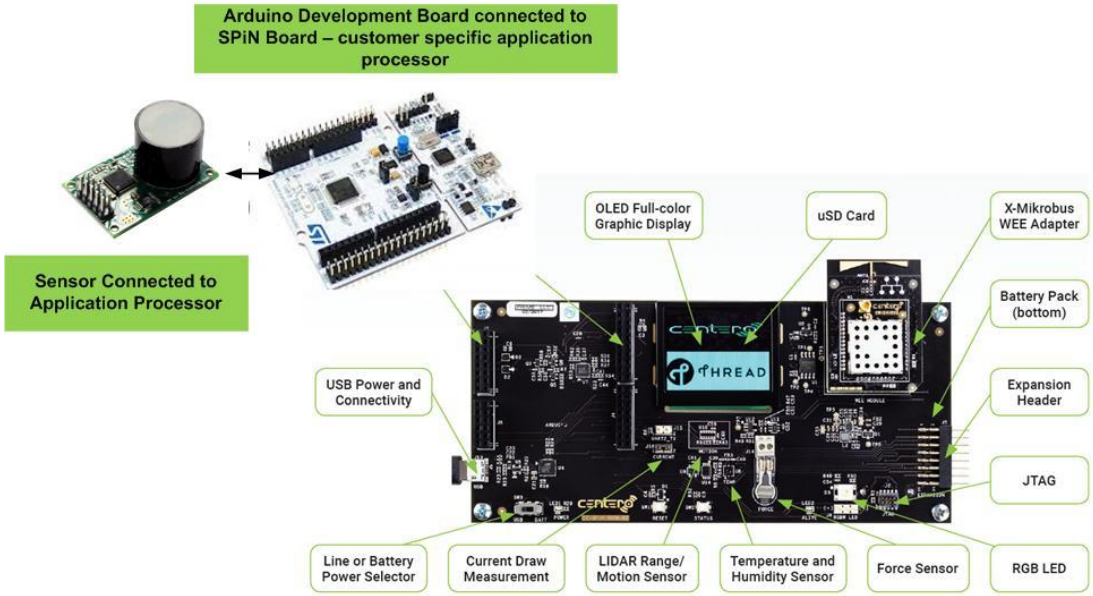
Duration: 6 – 12 months

RPS Goals and Deliverables

- By using Centero's Rapid Prototyping Service field instrument vendors can have a functional prototype (proof-of-concept) within 4 – 6 weeks
- This reduces the product development cycle by 3 - 5 months

Functional Prototype

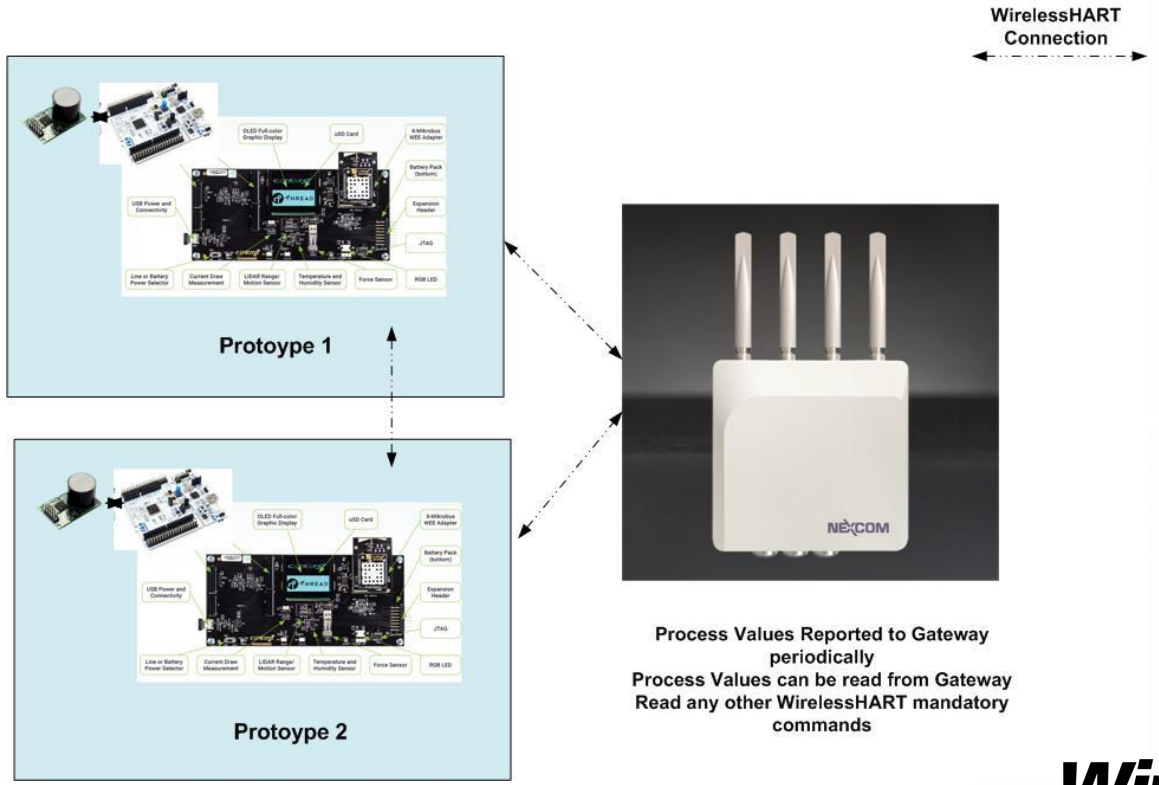
Customer Specific Functional Prototype



WiHART Development Kit SPiN Board

WirelessHART Network

Prototype WirelessHART Network



Requirements

Tasks and Activities

Requirements

- Customer specifies sensor that it wants connected to the application processor of their choice- and if available sends sensor development board
  - Sensor needs to have digital output – I2C, UART, SPI, 1-wire etc
  - No analog sensor – or sensor that needs calibration/conditioning
- Customer defines what they want mapped into two (2) WirelessHART process variables
  - Process Variable PV1: sensor value
  - Process variable PV2: examples - sensor values, temperature, battery voltage etc
- Customer specifies how often instrument should publish/report PVs to WirelessHART Gateway

Prototype Development

Tasks and Activities

Centero Tasks

- Connect application processor Arduino board to the WiHART development board (development board has Arduino connector)
- Port WirelessHART application processor firmware to application processor chosen by customer
- Read sensor and map into Process Variable PV1
- Add customer defined value to Process Variable 2 (examples: temperature, battery voltage etc)
- Join prototype to WirelessHART Gateway of the WiHART Development Kit
- Prototype will publish PV1 and PV2 based on the customer's requirements
- Prototype will respond to read requests from the Gateway for PV1 and PV2 (as well as all mandatory WirelessHART commands)

Deliverables

Deliverables

Deliverables

WiHART Development Kit customized to customer's requirements that includes

- Two (2) Functional Prototypes
- Application processor source code project
  - Maps one (1) sensor value into Process Variable 1
  - One (1) additional process variables reported – specified by customer
- Architecture document
- Prototype wiring diagram
- Customer specific guide
- Full WiHART Development kit which also includes NIO200HAG Gateway (C1D2 or ATEX certified)

Contact

For additional information please visit

www.centerotech.com

or contact us at

contact@centerotech.com