trinity

EDI WSN/IOT TESTBED

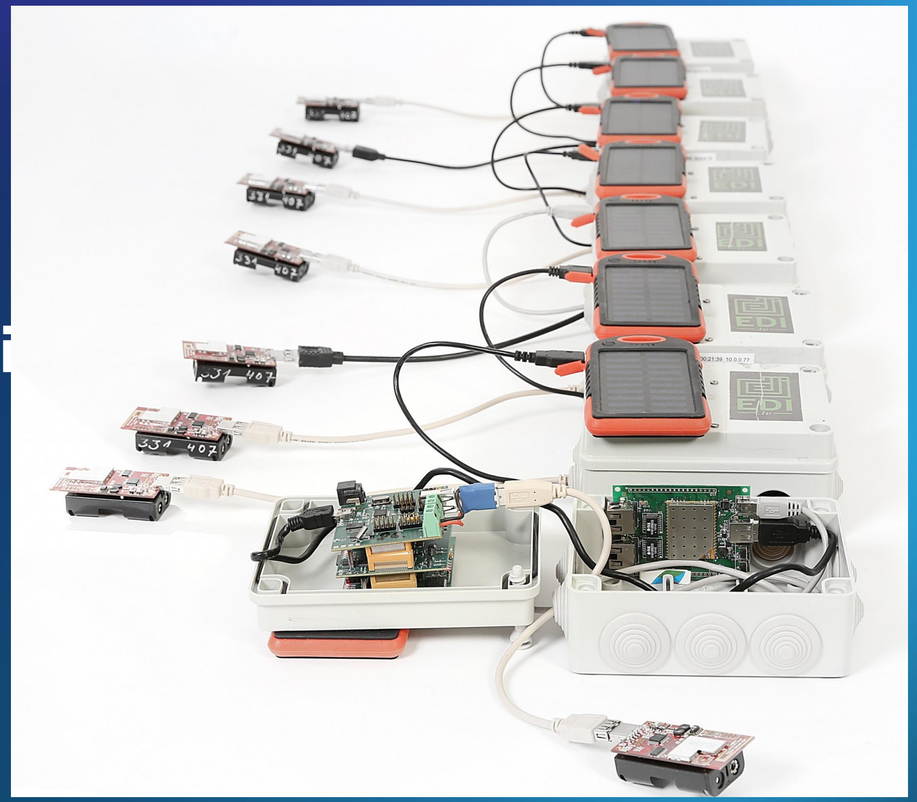
PRODUCT MANAGER VERSION

www.trinityrobotics.eu

Module components

This module consists of three parts:

- **Mobile or static Workstation, which consi**
  - **Device Under Test(DUT)**
  - **EDI TestBed adapter**
  - **Gateway**
- **EDI TestBed backend**
- **EDI TestBed CLI**



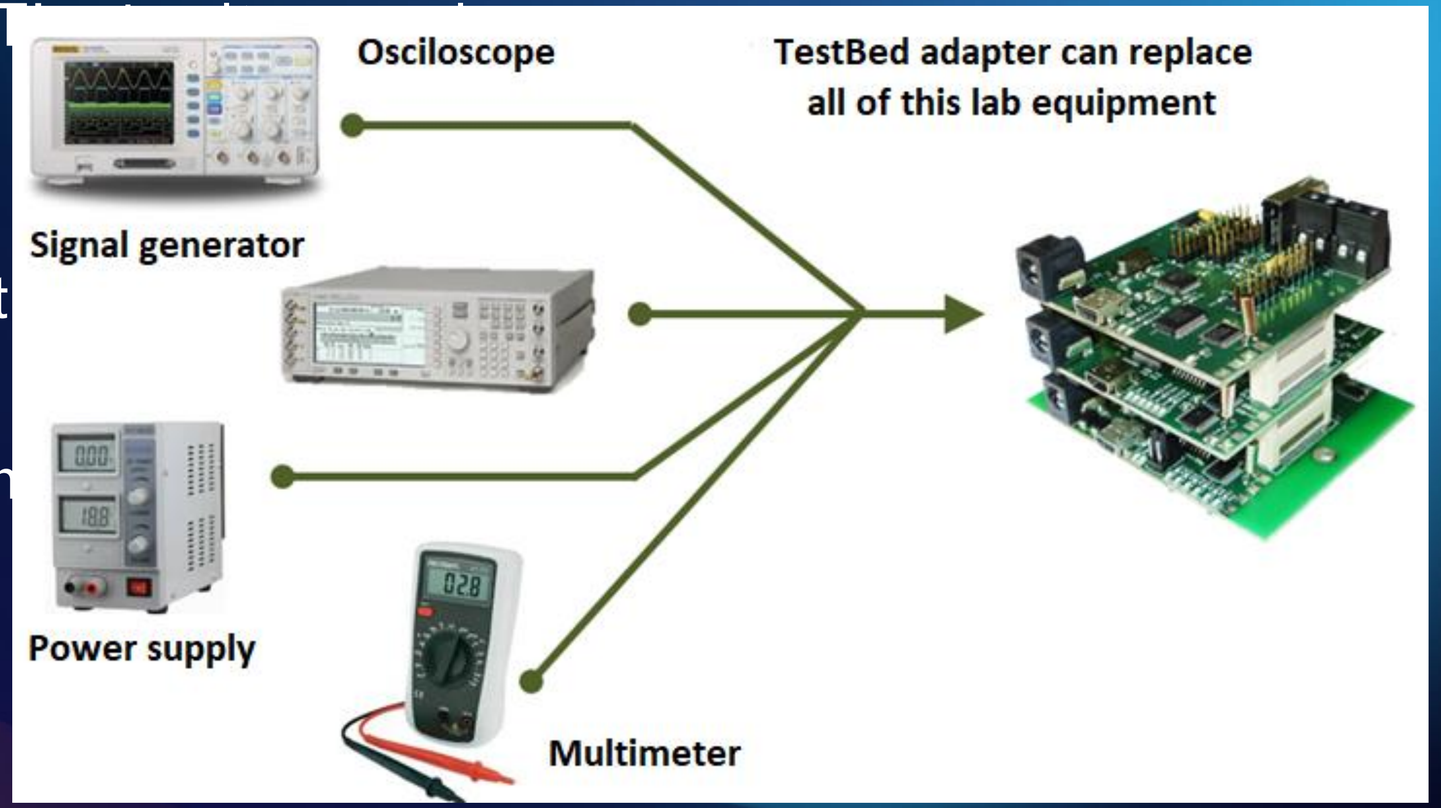
The Workstation is deployed in the target environment and connects to the backend. All of the user interaction and data acquirement is done through the EDI TestBed CLI.

More information can be found here: https://git.edi.lv/TestBed/edi-testbed-cli/wikis

Technical specifications

The EDI WSN/IoT TestBed provides additional functionality which can be exploited by users:

- Remotely reprogram multiple DUT
- Control serial communication;
- Start and stop experiments;
- Retrieve historical experiment dat
- Repeat previous experiments;
- Measure DUT power consumption
- Simulate DUT battery discharge;



Single workstation takes up approx. 20cm x 40cm space and is 20 cm in height.

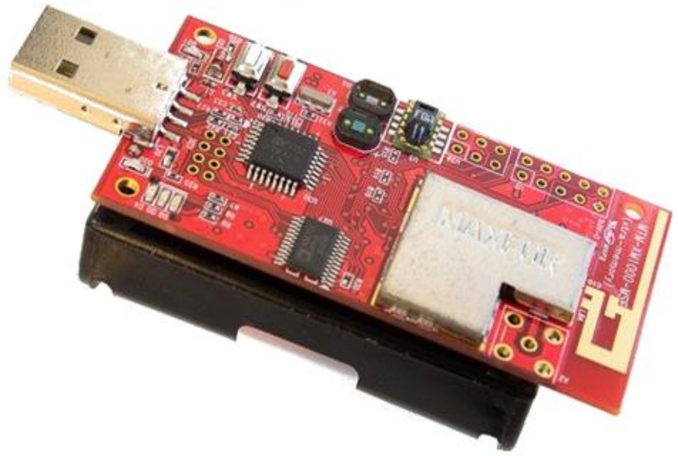
Setting up the system

To set up the EDI TestBed workstation in the intended environment only a **WiFi internet connection** is required. Once the Workstations are configured with the connection properties, they automatically connect to the backend and are available for user interactions.

As the default Device Unde
Test, which can be used to
sense or actuate according
the business needs, we are
providing the Advanticsys
XM1000 sensor node.

Processor		
Processor Model	TI MSP430F2618	Texas Instruments MSP430 family
Memory	116KB 8KB 1MB	Program flash Data RAM External Flash (ST® M25P80)
ADC	12bit resolution	8 channels
Interfaces	UART, SPI, I2C USB	Serial Interfaces External System Interface (FTI® FT232BM)
Radio		
RF Chip	TI CC2420	IEEE 802.15.4 2.4GHz Wireless Module
Frequency Band	2.4GHz ~ 2.485GHz	IEEE 802.15.4 compliant
Sensitivity	-95dBm typ	Receive Sensitivity
Transfer Rate	250Kbps	IEEE 802.15.4 compliant
RF Power	-25dBm ~ 0dBm	Software Configurable
Range	~120m(outdoor), 20~30m(indoor)	Longer ranges possible with optional SMA antenna attached
Current Draw	RX: 18.8mA TX: 17.4mA Sleep mode: 1uA	Lower RF Power Modes reduce consumption
RF Power Supply	2.1V ~ 3.6V	CC2420 Input Power
Antenna	Dipole Antenna / PCB Antenna	Additional SMA connector available for extra antenna

Sensors		
Light 1	Hamamatsu® S1087	Visible Range (560 nm peak sensitivity wavelength)
Light 2	Hamamatsu® S1087-01	Visible & Infrared Range (960 nm peak sensitivity wavelength)
Temperature & Humidity	Sensirion® SHT11	Temperature Range: -40 ~ 123.8 ºC Temperature Resolution:: ± 0.01(typical) Temperature Accuracy: ± 0.4 ºC (typical) Humidity Range: 0 ~ 100% RH Humidity Resolution: 0.05 (typical) Humidity Accuracy: ± 3 %RH (typical)



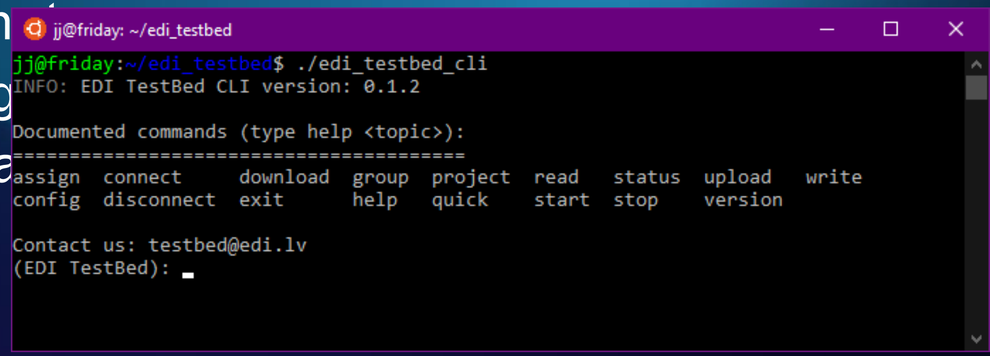
To access the system users are manually registered on individual agreement basis.

Integration

This module is meant to be deployed as a short term monitoring and actuating solution for the testing and validation of chosen approach. The module removes the burdens of IoT system development allowing to focus on the business needs from day one.

Integration steps:

1. Place the Workstations in the target environment
2. Configure the Workstations with access to the intern
3. Prepare the binary executables with the business log
4. Use the EDI TestBed CLI to interact with the Worksta
    1) Setup the experiment
    2) Run the experiment
    3) Collect and analyze the results



More information can be found here: http://edi.lv/testbed

trinity ENGAGE WITH AGILE MANUFACTURING

Adaptability of the module

- Purpose of this module is to demonstrate how Infrastructure as a service can be used to support and kick-start the digitalization.
- This solution can be used for Quality inspection, Smart Maintenance or any other digitalized solution for the production line.
- The main advantages are the possibility to add digitalized solution to the existing production line hardware, reducing costs and time while also extending the lifecycle of the production line and minimizing it’s carbon footprint.

- Of course, due to the differences in objectives purchase of different DUT’s and/or additional sensors/actuators might be necessary.

EDI WSN/IoT TestBed module

The **environment** where the module can be used **must be compatible with consumer grade electronics**.

If you are interested in this module, contact us:

https://www.edi.lv/en/contacts/

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INSTITUTE OF ELECTRONICS AND COMPUTER SCIENCE

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Thank you!

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