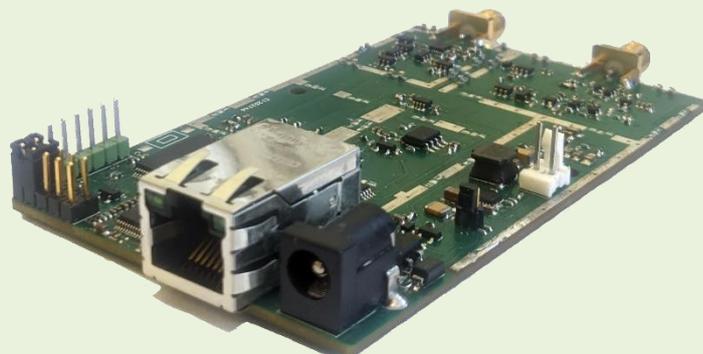


Product Brief

UWB Impulse Radar kit for Research & Education

Ultra-Wide Band Impulse Radio Radar platform is a development kit that can be used as an electromagnetic pulse transceiver. The UWB impulse radar kit and software tools are the perfect teaching environment to help understand several important RF technical concepts to students. As well as the sensor can be used as an additional or stand-alone sensing device in an already working automatic system. This implementation between devices is done via the Ethernet interface which provides reciprocal communication



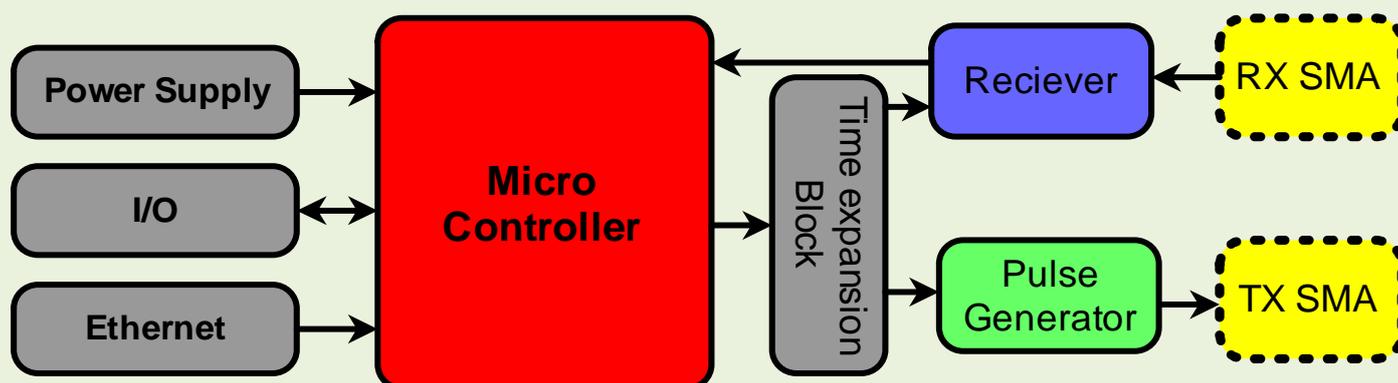
POSSIBLE APPLICATIONS

- ❖ University curricula
- ❖ Medical Diagnostics
- ❖ Vital sign detections
- ❖ Industrial automatization
- ❖ Through wall scanning
- ❖ Ground layer scanning
- ❖ Material detection for recycling
- ❖ Object tracking
- ❖ Fluid level detection
- ❖ Cable inspection

KEY FEATURES

- ❖ Impulse Radar Sensor
- ❖ Range accuracy – 2.5 cm
- ❖ Range of operation – 20 cm to 7.5 m
- ❖ Ethernet interface
- ❖ Built in unique ID.
- ❖ SMA connectors for TX and RX connections
- ❖ Flash memory for calibration data
- ❖ Capability to be used in a network environment or as a standalone device.
- ❖ Graphical user interface for radar data
- ❖ Calibration and User interface GUI

UWB RADAR BLOCK DIAGRAM



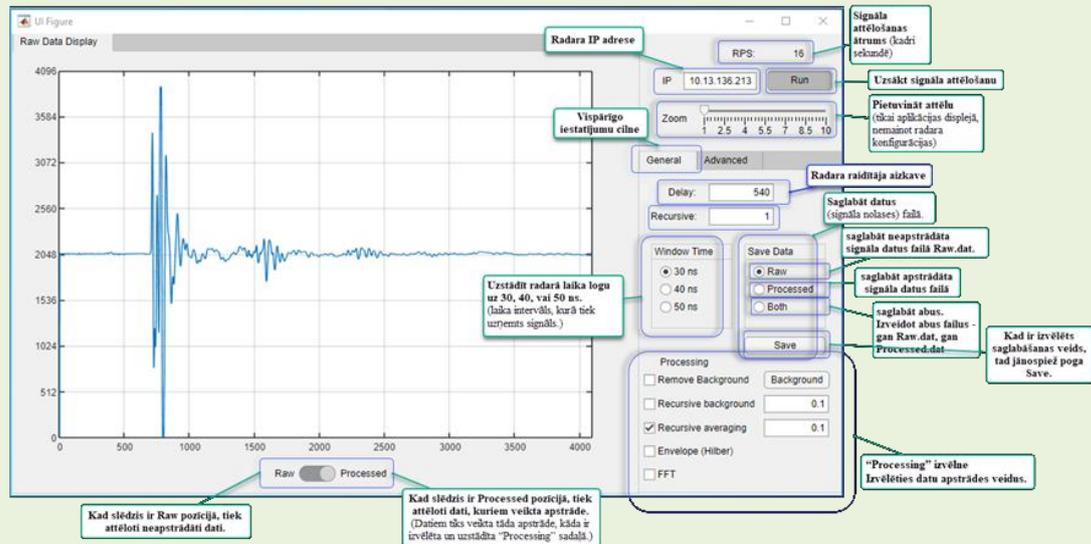
Functionality specification

Software specifications:

The software in this kit includes a User Graphical User Interface, which displays either the raw or processed data, where the processing can be chosen from several provided filters. There is a possibility to save the raw or filtered data in several formats. The connection to the Radar sensor is done using DHCP to configure the connection IP.

GUI controls:

- ❖ Window length: 30 - 40 - 50 ns
- ❖ Sample count: 1 – 4096
- ❖ Window start delay: 0 - 20 ns



Waveform recorded by MATLAB GUI.

Technical Specifications

- ❖ Radar board specification
 - 100 x 60 mm Dimensions
 - STM32F407 Microcontroller
 - Power over Ethernet power supply or
 - 12 - 56 V Auxiliary power supply
- ❖ Antenna specification
 - 119 x 119 x 61 mm Dimension
- ❖ Receiver parameters:
 - Receiver bandwidth = 0.1 – 4.5 GHz
- ❖ Transmitter parameters:
 - Bandwidth = 0.1 – 4.5 GHz
 - Max Amplitude = 5 V
 - PRF = 1.38 MHz
- ❖ Antenna parameters:
 - Frequency range = 1.4 – 4.7 GHz
 - Gain @3.30GHz = 6.6 dB

UWB-IR ADVANTAGES

- ❖ UWB is considerably cheaper and easier to demonstrate in a lab, than conventional RF
- ❖ The RF transmission signals are short enough that an individual pulse has a raw length of approximately 20 cm. This physical length is easy for students to visualize and gives transmission characteristics consistent with operation in a lab environment.
- ❖ UWB technology is power efficient.
- ❖ UWB signals have good noise immunity
- ❖ Signals can easily penetrate variety of materials.
- ❖ Simple Architecture

FOR MORE INFORMATION, PLEASE CONTACT:

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