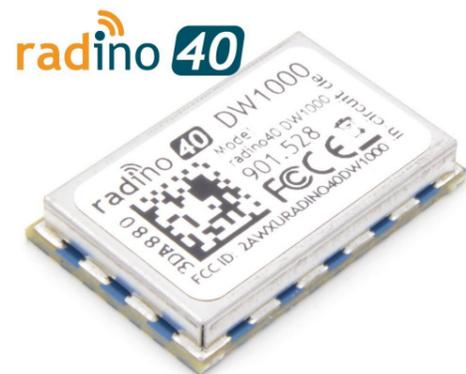


ICDWpro quad Tag



radino40 DW1000 - Ultra Wide Band Radio Module for Ranging and Real Time locating Systems (RTLS)

- * IEEE802.15.4-2011 UWB compliant
- * Supports 6 RF bands from 3.5 GHz to 6.5 GHz
- * Data rates of 110 kbps, 850 kbps, 6.8 Mbps
- * 32-bit ARM® Cortex®-M4 CPU with FPU, 64 MHz
- * allows down to 10cm accuracy for distance measurements

Applications:

- * **ICDWpro** high accurate, high density distance warner
 - + warning on selectable ranges and durations (flashing LEDs, buzzer, vibration)
 - + up to 6 escalation steps
 - + logs >30.000 events
 - + reading and logging of additional data sources
 - like Bluetooth BLE beacons, acceleration data, time sources etc.



ICDWpro quad 164643 Tag

- * radino40 DW1000 radio module
- * 1000mAh battery
- * measures and logs distances to other tags via UWB (ultra wide band)
- * additionally logs BLE data
- * live data evaluation possible (number of contacts, battery state etc.)
- * **black version (without print) for RESTART-19**

ICDWpro Anchor PoE - Setup and read out Tags via UWB



Anchor PoE - UWB device with Ethernet connection

- * read UWB packets and send them via Ethernet (PoE) to backend
- * supports 6 RF bands from 3.5 GHz to 6.5 GHz

Applications:

- * **ICDWpro Anchor PoE** used as data collector



IC Case105 - transport, charging and data collection

- * 105 charging sockets for In-Circuit UWB Tags
- * up to 40A sum charge current
- * active cooling
- * transport tags in deep sleep mode

ICDWpro Overview



Optional

use ICDWpro Master
- stand alone

or optional via

- PoE Switch
- DHCP Server
- ICDWpro Server

ICDWpro Server
#902.089



PoE Switch
#500.110



DHCP Server
#902.088



ICDWpro Anchor PoE
#902.074A001



ICDWpro Anchor
reads events from ICDWpro Tags via an
ICDWpro Anchor while tags are in charging
case

IC Case105 Charging/Transport
#902.076C (105 Tags)



ICDWpro Master
#902.090



ICDWpro Master
1.) assigns ICDWpro Tags to Ticket-IDs
by scanning their barcodes
and stores the data pair in an internal
database
or sends the data to an external database
(via ICDWpro Server)

2.) sends (via ICDWpro Anchor)
timestamps to assigned ICDWpro Tags for
event collection

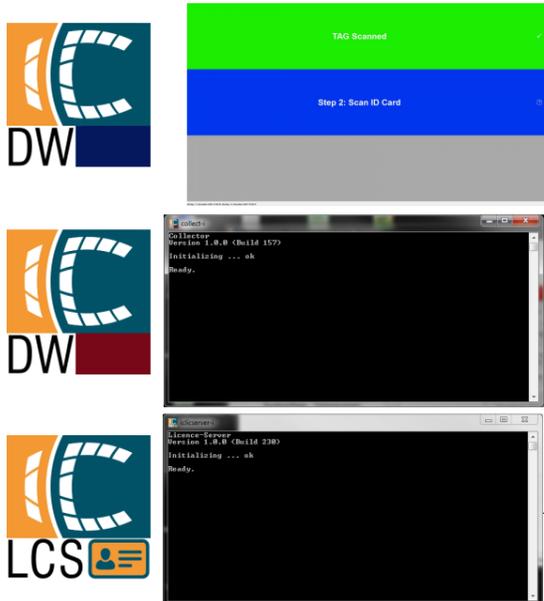
ICDWpro quad Tag
#902.079A004



ICDWpro Tag
1.) permanently measures distances to
other tags while not in charging case
2.) When within defined distance/duration
it writes an event to the internal non volatile
memory.

3.) The collected events are sent to an
ICDWpro Master when in charging case

- Software
- 1.) ICDWpro Scan
- assigns ICDWpro Tags to
Ticket-IDs by scanning their
barcodes
 - 2.) ICDWpro Collector
- collects events from tags
- writes events to database
 - 3.) IC LicenceServer
- licensing of tools via IC License
Dongle



IC Licence Dongle
#902.084




ICDWpro Setup for Events

Ticket Server



External database

ICDWpro Server
#902.089



scan
Events

valid Tickets

IC Licence Dongle
#902.084



Stand Alone System

ICDWpro Anchor PoE
#902.074A001



ICDWpro Master
#902.090
internal License



Internal database

Time Reference
Events

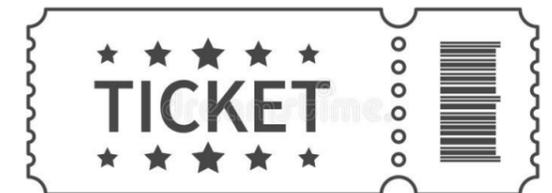
pairing



IC Case Charging/Transport
#902.076C (105 Tags)



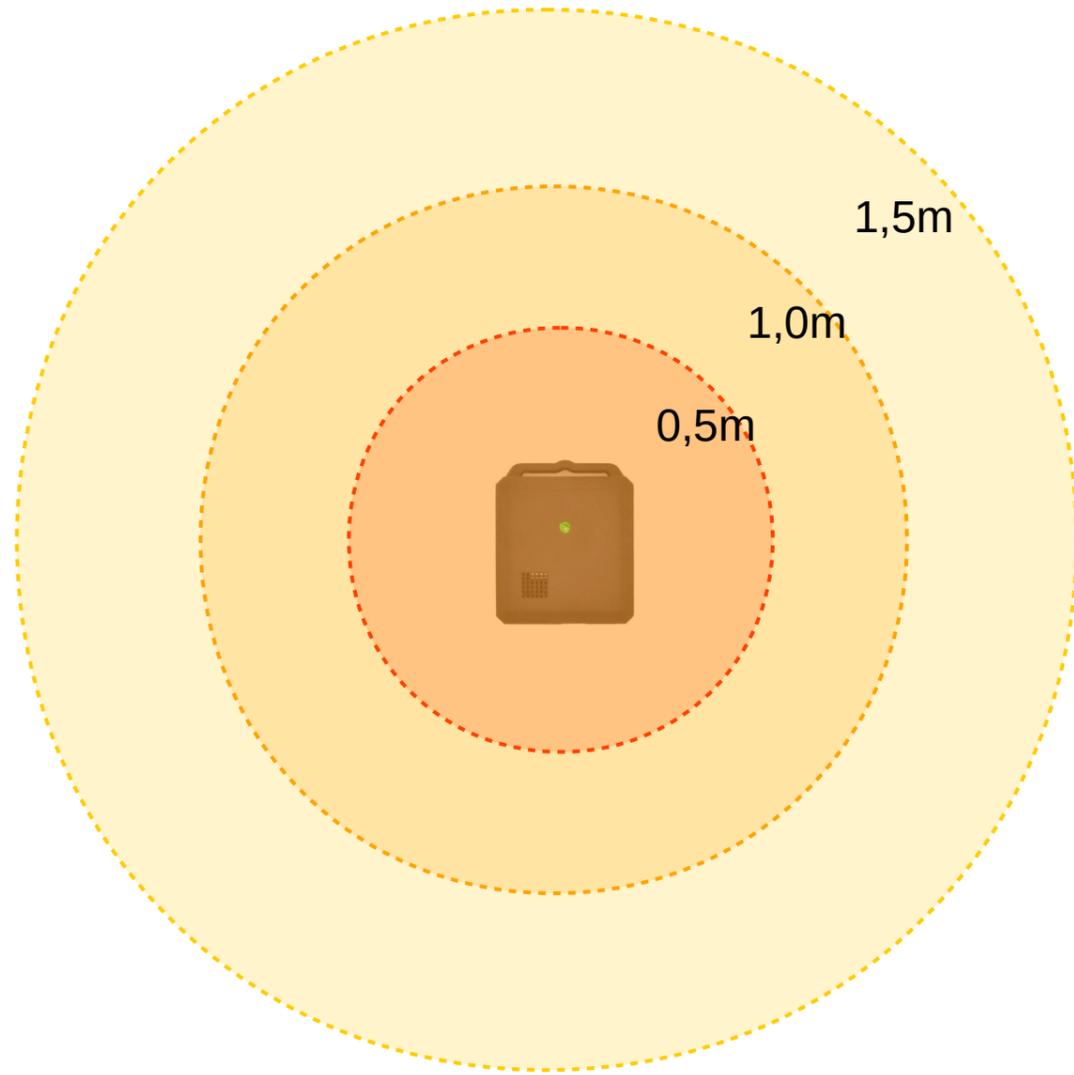
ICDWpro quad Tag
#902.079A004



IN-CIRCUIT
ENGINEERING AS A PASSION

www.in-circuit.de

escalation steps:



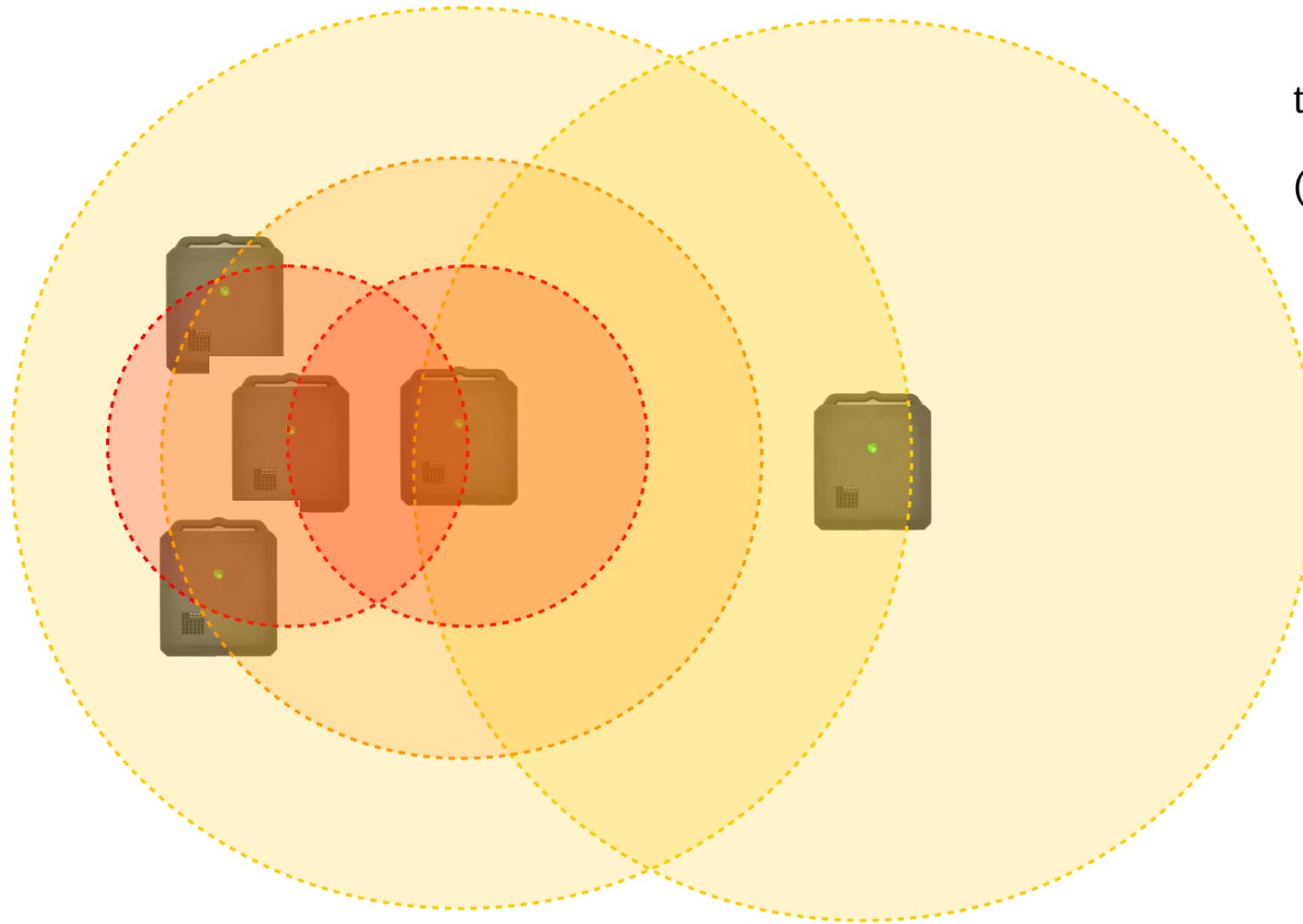
generate events of seen other tags via UWB
example distances/durations

- * 1,5m for >10 seconds
- * 1.0m for >6 seconds
- * 0.5m for >3 seconds

log the events:

- distance to tag
- time within distance
- start time within distance
- lowest seen distance while within range

Topology:



left group of 4 Tags

- * middle tag sees the other 3 tags within 0,5m
- * right tag sees other 3 tags within 0,5m or 1m and the right single tag in 1,5m

right single Tag

- * sees the right tag of the group within 1,5m



tags are able to receive UWB/BLE beacons to help estimate their absolute position (landmarks, trams, etc.)



- live data is collected by anchor
- * overview of system
- * collect logged data from tags
- * tag position estimation