

Diagram:

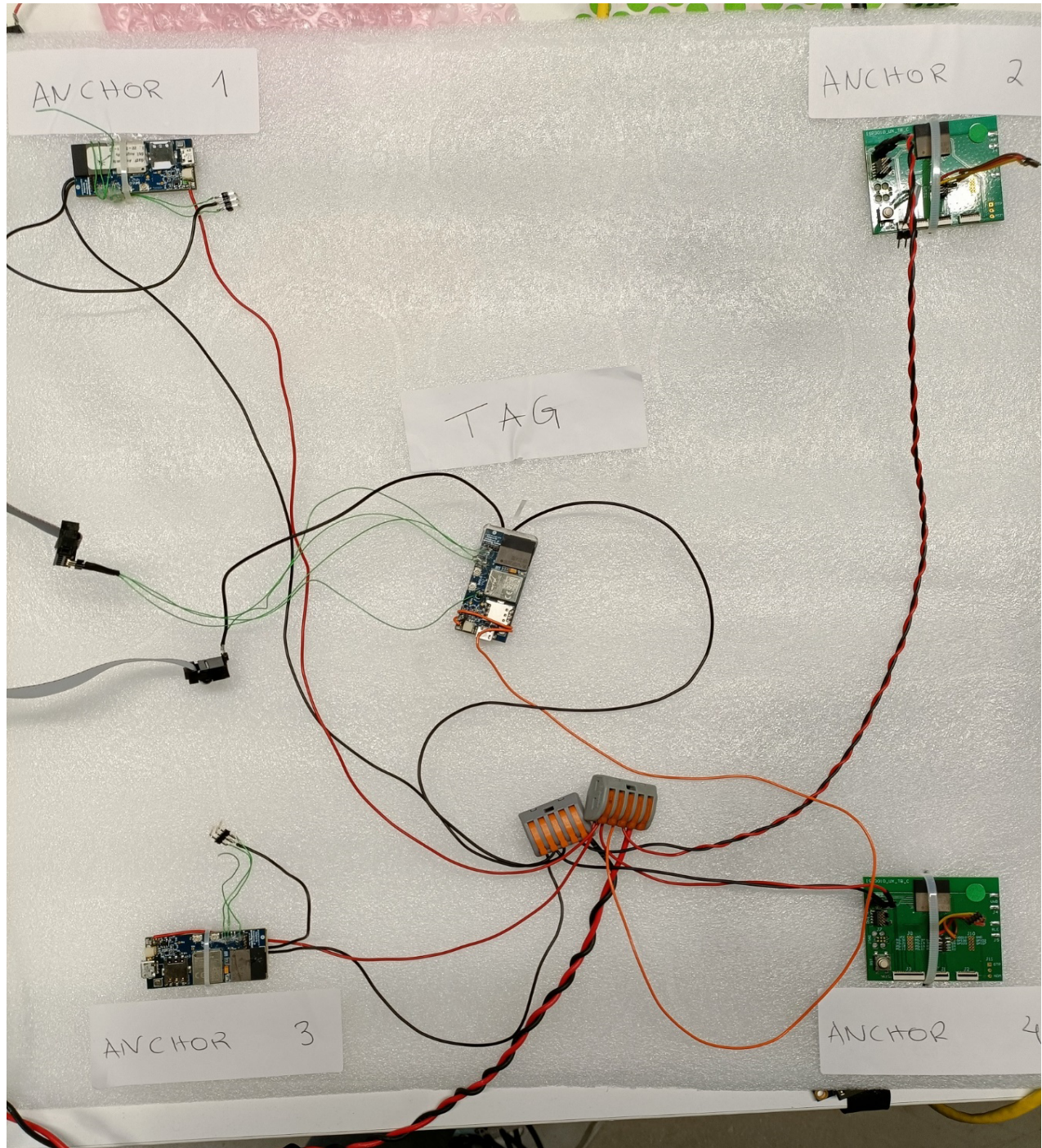


Diagram Description:

Diagram consists in 4 Anchors and 1 TAG only.

All Anchors are sending the range by UWB to TAG.

TAG is receiving all information from sensors and Anchors and emits over UART those informations (UART Messages).

Connection type:

UART (3 cables – TX GND RX)

- Baud Rate: 115200
- Parity: None
- Stop Bits: 1
- No RTS/CTS

UART Messages:

Requests: All requests will have an acknowledge of: **OK**

START

This will make the TAG to start sending real time data over UART (all messages related to UWB and Sensors)

STOP

This will make the TAG stop sending any real time data over UART.

ANCOUNT;NUMBER_OF_ANCHORS

NUMBER_OF_ANCHORS: is the number of anchors for the TAG do the polling

SRC;ADDRESS_IN_UINT16

ADDRESS_IN_UINT16: address in unsigned int 16 bits (TAG default: 0x0000, Anchors: 0x0001, 0x0002,...)

This will change the address of the TAG / Anchor (source address)

DEST;ADDRESS_IN_UINT16

ADDRESS_IN_UINT16: address in unsigned int 16 bits (default is 0xFFFF)

This will change the address for where the TAG is sending UWB Data (destination address)

DELAYUWB;DELAY_IN_MS

DELAY_IN_MS: delay in milliseconds

This will change the delay in ms of the UWB sensors data polling (range).

DELAYMAG;DELAY_IN_MS

DELAY_IN_MS: delay in milliseconds

This will change the delay in ms of the Magnetic Sensor timer.

DELAYGYRO;DELAY_IN_MS

DELAY_IN_MS: delay in milliseconds

This will change the delay in ms of the Accelerometer and Gyroscope timer.

DELAISF;DELAY_IN_MS

DELAY_IN_MS: delay in milliseconds

This will change the delay in ms of the Sensors Fusion timer.

Responses:

All messages end with \r\n

NOTE: All anchor UWB messages are sent every 300ms. Other messages are sent every 3000ms.

ANCHOR;ID;RANGE_IN_CM

ID: anchor unique ID

RANGE_IN_CM: is the value of UWB Range in cm.

Examples:

ANCHOR;1;45

ANCHOR;2;27

ANCHOR;3;62

ANCHOR;4;39

GYRO;TEMPERATURE;ANGULAR_X;ANGULAR_Y;ANGULAR_Z;LINEAR_X;LINEAR_Y;LINEAR_Z

TEMPERATURE: temperature in the module of the Gyroscope [Must divide by 100 for a correct float value) (°C)

ANGULAR_X: Angular rate sensor pitch axis (X) angular rate output [dps]

ANGULAR_Y: Angular rate sensor pitch axis (Y) angular rate output [dps]

ANGULAR_Z: Angular rate sensor pitch axis (Z) angular rate output [dps]

LINEAR_X: Linear acceleration sensor X-axis output [mg]

LINEAR_Y: Linear acceleration sensor Y-axis output [mg]

LINEAR_Z: Linear acceleration sensor Z-axis output [mg]

Example:

GYRO;2765;-0.12;83.15;77.2;2.00;0.00;3.00

MAGNETIC;X;Y;Z

X: X-axis data output [mGauss]

Y: Y-axis data output [mGauss]

Z: Z-axis data output [mGauss]

Example:

MAGNETIC;-1.74;-13.92;-41.75

SENSORFUSION;TEMPERATURE;PRESSURE;HUMIDITY;GAS_RESISTANCE

TEMPERATURE: temperature [Must divide by 100 for a correct float value) (°C)

PRESSURE: pressure [Must divide by 100 for a correct float value) (Pa)

HUMIDITY: humidity[Must divide by 100 for a correct float value) (RH Percent)

GAS_RESISTANCE: gas resistance [Must divide by 100 for a correct float value) (Ohms)

Example:

SENSORFUSION;2334;10165700;5473;4265600