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Har vedhæftet en kort setup guide til HW. Masteren får strøm gennem dens ethernet kabel. Den kan ikke køre uden et GOT program, jeg har vedhæftet en setup fil her, men det er installeret på PC’en i mtech.  Det kræver også en savedata/config fil, denne er placeret på PC’en i mtech.

Kørsel af GOT programmet burde være ret lige til. Start programmet der hedder GTExruptive op, sikre at den rigtige savedata/config fil er loadet ind, og tryk på knappen ”System GTServer”.

Jeg har vedhæftet 2 links APK filer, som du skal ligge over på din telefon/tablet, og så installere derigennem:

GOTTestApp (til visning af afstande): <https://drive.google.com/file/d/1aBP4dWoXBMNcAToxYYeFP9W_AfZFNsMS/view?usp=sharing>

GOT-SDK\_maps (google maps app): <https://drive.google.com/file/d/1hoS9NyHV6DdpreZ7pPoVNL-b1qAyHu8s/view?usp=sharing>

Jeg har kopieret den relevante del af fra vores protokol dokument. Det kommer ud i en HEX streng. Jeg skal dog lige sige at byte 5 i layer 3 pakken er en relativt ny indførelse, og jeg er derfor ikke sikker på om den firmware der er i dine receivere har den med. Det kan du teste ved at måle på længden af pakken tænker jeg (17 vs 18 byte for pakker med 1 master i rækkevidde).

Jeg kan også sende dig de java filer jeg bruger for at læse fra USB hvis det vil hjælpe dig.

# 3: CPR – Tablet

The CPR is connected to the Tablet. The CPR will send a new measurement packet whenever it has received a ultrasound signal (and calculated the time differences). When there is a firmware update the Tablet will send a prepare for firmware update message first, then the firmware. When the CPR gets a prepare for firmware update message, it will enter boot load mode. If the CPR is in boot load mode and does not receive a new firmware packet, or it has started up and there is no firmware installed, it will periodically send a message type 3 (once every 1 second).

Turning on/off will be handled by turning the USB power on/off, or using USB suspend.

The communication uses Little-endian, and has a baud rate of 115200. We use 1 stop bit, no parity.

## Layer 2

Start byte value: 0x2

Stop byte value: 0x3

Escape char value: 0x10

Escape chars placed in front of bytes that have the value 0x2, ox3 or 0x10, and 0x20 is added to the byte value.

Checksum (2 byte): 16 bit fletchers checksum calculation. (calculate 1 byte checksum, sum1, as the byte-wise sum mod 255, and the second byte checksum, sum2, as the byte-wise summation of sum1 mod 255. The final 2 byte checksum is then calculated as: sum2 << 8 | sum1).

See: <https://en.wikipedia.org/wiki/Fletcher%27s_checksum> for an example.

Start byte, stop byte and escape chars are not included in checksum calculation.

|  |  |
| --- | --- |
| Byte 0 | Start byte |
| Byte 1 | Length |
|  | Layer 3 packet |
|  | … |
|  | Checksum\_Lower |
|  | Checksum\_Upper |
|  | Stopbyte |

Length: The number of bytes in the layer 3 packet (without escape chars), thus the full length – 5.

## Layer 3 protocols

### CPR to Tablet new measurement (mssg type 1)

Sent when there is a new measurement.

<Message type, ReceiverID, TransducerLevel, quiet time, # Number of Masters in range, RSSI-1, Transducer\_1\_ID, Transducer-1-time, …, RSSI-n, Transducer\_n\_ID, Transducer-n- time>

|  |  |
| --- | --- |
| Byte 0 | Type |
| Byte 1 | ReceiverID\_Low |
| Byte 2 | ReceiverID\_Middle |
| Byte 3 | ReceiverID\_High |
| Byte 4 | TransducerLevel |
| Byte 5 | Quiet Time |
| Byte 6 | # Masters in range |
| Byte 7 | RSSI-1 |
| Byte 8 | TxID\_1\_Low |
| Byte 9 | TxID\_1\_Middle |
| Byte 10 | TxID\_1\_High |
| Byte 11 | TxID\_1\_time\_low |
| Byte 12 | TxID\_1\_time\_High |
|  | … |
|  | … |
|  | RSSI-N |
|  | TxID\_N\_Low |
|  | TxID\_N\_Middle |
|  | TxID\_N\_High |
|  | TxID\_N\_time\_low |
|  | TxID\_N\_time\_High |

Max size (When 7 Masters in range): 392 bit + checksum + stopbyte + startbyte + escape chars.

Type (byte): 1

Data Length: number of bytes in the data

**Data:**

ReceiverID (3 bytes): Id of the CPR

TransducerLevel (byte): Strength of the ultrasound signal (0 to 100, higher is better)

# Masters in range (byte): Number of Masters that was in range to calculate time for

RSSI-1 (byte): RSSI in dBm (between 0 and -100)

TxID\_1\_time (3 bytes): The time difference we use to calculate distance. Time is sent in us (microseconds)

Lad mig vide hvis der er noget der skal præciseres.