

[Coordinator]

u16bytesread=PDUM\_u16APduInstanceReadNBO

(sStackEvent.uEvent.sApsDataIndEvent.hAPduInst,0,"a¥x08",&Rxbyte);

① sStackEvent.uEvent.sApsDataIndEvent.hAPduInst

受信すると、ここにデータが格納される

② Rxbyte

PDUM\_u16APduInstanceReadNBO 関数を使用してデータをここに格納

③ U16bytesread

受信したバイト数を表す.(1 byte のデータならば、1 が格納されている)

[結果] ラズパイ → Enddevice → Coordinator 16 進数のセンサデータ

```
KYOHEI@KYOHEI:~/Desktop $ python al.py
受信データ: 345.0
電圧: 0.690
['0xaa', '0xbb', '0x00', '0x15', '0xae', '0x47', '0xe1', '0x7a', '0x14', '0xe6',
'0x3f']
b'\x00\x00In start state\r\n'
受信データ: 380.0
電圧: 0.760
['0xaa', '0xbb', '0x00', '0x52', '0xb8', '0x1e', '0x85', '0xeb', '0x51', '0xe8',
'0x3f']
b'data: 0 \r\n'
受信データ: 352.0
電圧: 0.704
['0xaa', '0xbb', '0x00', '0xba', '0x49', '0x0c', '0x02', '0x2b', '0x87', '0xe6',
'0x3f']
b'data: 15 \r\n'
受信データ: 335.0
電圧: 0.670
['0xaa', '0xbb', '0x00', '0x71', '0x3d', '0x0a', '0xd7', '0xa3', '0x70', '0xe5',
'0x3f']
b'data: ae \r\n'
受信データ: 386.0
電圧: 0.772
['0xaa', '0xbb', '0x00', '0x4e', '0x62', '0x10', '0x58', '0x39', '0xb4', '0xe8',
'0x3f']
b'data: 47 \r\n'
受信データ: 405.0
電圧: 0.810
['0xaa', '0xbb', '0x00', '0xec', '0x51', '0xb8', '0x1e', '0x85', '0xeb', '0xe9',
'0x3f']
b'data: e1 \r\n'
受信データ: 384.0
電圧: 0.768
['0xaa', '0xbb', '0x00', '0xfa', '0x7e', '0x6a', '0xbc', '0x74', '0x93', '0xe8',
'0x3f']
b'data: 7a \r\n'
受信データ: 359.0
電圧: 0.718
['0xaa', '0xbb', '0x00', '0x60', '0xe5', '0xd0', '0x22', '0xdb', '0xf9', '0xe6',
'0x3f']
b'data: 14 \r\n'
^Z
[1]+ 停止 python al.py
KYOHEI@KYOHEI:~/Desktop $ scrot -d 1
```

APP: Network Started  
APP: Channel - 11  
received data16:15ae47

-----Finish data-----  
received data16:52b81e

-----Finish data-----  
received data16:ba490c

-----Finish data-----  
received data16:713d0a

-----Finish data-----  
received data16:4e6210

-----Finish data-----

### [Enddevice]

```
/
uint8_t *TxBytePointer;
TxBytePointer = &TxByte;

u16Offset += PDUM_u16APduInstanceWriteNB0(hAPduInst, u16Offset, "a\x08", TxByte); //16進数センサデータ
```

### [Coordinator]

```
uint32_t Rxbyte[32];
uint32_t *RxbytePointer;
RxbytePointer = &Rxbyte;

DBG_vPrintf	TRACE_APP, "received data16:");

u16bytesread = PDUM_u16APduInstanceReadNB0(sStackEvent.uEvent.sApsDataIndEvent.hAPduInst,0,"a\x08",&Rxbyte);
DBG_vPrintf	TRACE_APP, "%02x", *RxbytePointer);

DBG_vPrintf	TRACE_APP, "\n");
```

### [Common]

```
void vReadCharInterrupt ()
{
uint8_t rxByte = u8AHI_UartReadData (DBG_E_UART_0);
switch(state){
case START:
if(rxByte == 0xAA)
{
state = PRIMITIVE_TYPE;
DBG_vPrintf(TRUE,"In start state\n");
break;
}
break;
case PRIMITIVE_TYPE: //コマンド処理
if(rxByte == 0xBB){
state = WAIT_DATA;
break;
}
break;
case WAIT_DATA: //センサデータ
DBG_vPrintf(TRUE,"data: %x \n", rxByte);
TxByte[indexCount] = rxByte;
indexCount++;
if(indexCount == 9){
cmd = 3;
indexCount = 0;
state = START;
}
break;
default:
break;
}
}
```

### [今後の課題]

1. 16 進数データを全て表示できていない.
2. センサ回路を正確に実装する
3. 16 進数から 10 進数に変換するコードを実装する

マルチホップで実装して確認した。

Coordinator 1

Router 8

Enddevice 1

院生部屋 → 廊下 → 階段 → 3 階の廊下

```
python al.py
受信データ: 383.0
電圧: 0.766
['0xaa', '0xbb', '0x00', '0x50', '0x8d', '0x97', '0x6e', '0x12', '0x83', '0xe8', '0x3f']
b'\x00\x00In start state\r\n'
受信データ: 359.0
電圧: 0.700
['0xaa', '0xbb', '0x00', '0x67', '0x66', '0x66', '0x66', '0x66', '0xe8', '0x3f']
b'data: 0 \r\n'
受信データ: 408.0
電圧: 0.816
['0xaa', '0xbb', '0x00', '0xea', '0x26', '0x31', '0x08', '0xac', '0x1c', '0xea', '0x3f']
b'data: 50 \r\n'
受信データ: 330.0
電圧: 0.660
['0xaa', '0xbb', '0x00', '0x1f', '0x85', '0xeb', '0x51', '0xb8', '0x1e', '0xe5', '0x3f']
b'data: 8d \r\n'
受信データ: 369.0
電圧: 0.736
['0xaa', '0xbb', '0x00', '0x5a', '0x64', '0x3b', '0xdf', '0x4f', '0x8d', '0xe7', '0x3f']
b'data: 97 \r\n'
受信データ: 331.0
電圧: 0.662
['0xaa', '0xbb', '0x00', '0xc9', '0x76', '0xbe', '0x9f', '0x1a', '0x2f', '0xe5', '0x3f']
b'data: 6e \r\n'
受信データ: 403.0
電圧: 0.806
['0xaa', '0xbb', '0x00', '0x98', '0x6e', '0x12', '0x83', '0xc0', '0xca', '0xe9', '0x3f']
b'data: 12 \r\n'
受信データ: 376.0
電圧: 0.752
['0xaa', '0xbb', '0x00', '0xaa', '0xf1', '0xd2', '0x4d', '0x62', '0x10', '0xe8', '0x3f']
b'data: 83 \r\n'
受信データ: 374.0
電圧: 0.748
['0xaa', '0xbb', '0x00', '0x56', '0x0e', '0x2d', '0xb2', '0x9d', '0xef', '0xe7', '0x3f']
b'data: e8 \r\n'
受信データ: 394.0
電圧: 0.788
['0xaa', '0xbb', '0x00', '0x9e', '0xef', '0xa7', '0xc6', '0x4b', '0x37', '0xe9', '0x3f']
b'data: 3f \r\n'
受信データ: 345.0
電圧: 0.690
['0xaa', '0xbb', '0x00', '0x15', '0xae', '0x47', '0xe1', '0x7a', '0x14', '0xe6', '0x3f']
b'command: 3 \r\n'
受信データ: 410.0
電圧: 0.820
['0xaa', '0xbb', '0x00', '0x3e', '0x0a', '0xd7', '0xa3', '0x70', '0x3d', '0xea', '0x3f']
b'Size: 8 \r\n'
^Z
[1] + 停止 python al.py
```

```
Problems Console Properties Router EndDevice Coordinator
Serial: (COM5, 115200, 8, 1, None, None - CLOSED) - Encoding: (ISO-8859-1)
APP: Network Started
APP: Channel - 11
APP: vCheckStackEvent: unhandled event 29
APP: vCheckStackEvent: unhandled event 29
APP: vCheckStackEvent: unhandled event 29
APP: vCheckStackEvent: unhandled event 29
APP: vCheckStackEvent: unhandled event 29
received data16:508d97
-----Finish data-----
received data16:676666
-----Finish data-----
received data16:ea2631
-----Finish data-----
received data16:1f85eb
-----Finish data-----
received data16:5a643b
-----Finish data-----
received data16:c976be
-----Finish data-----
|
```

[結果] 成功

今後は、もう少し距離を取って Router を設置することで、今回よりも長距離な無線マルチホップネットワークを構築できる。