**Protocol description for LED board**

Communicates via Bluetooth module HC-06, name : led board , password : 2716

Baud rate : 9600, 8, n, 1

STX - start byte - EE$

ETX - end byte - E5$

COM1 - command: write new price - B1$

COM2 - command: write new time - B2$

COM3 - command: write new temperature - B3$

COM4 - request: current prices - B4$

COM5 - request: current settings - B5$

COM6 - command: write new settings - B6$

COM7 - response: current price - C1$

COM8 - response: current settings - C2$

ОК - confirm byte - D1$

Digits - number of digits in one price - 01 - 08

Rows - number of prices on the board - 01 - 08

DP - decimal point - 02 always

Prices are sent in binary-packed decimal(BCD) format - from 00 00 00 to 99 99 99. The decimal point is sent right after the identification byte(B1-C2). The decimals are sent first. The maximum amount of prices that can be visualized is 8.

Optional: Be able to change the names of Fuels.

Checksum(Csum) is used to validate the integrity of the packet. It is calculated by performing XOR logical operation on each byte up to the checksum and then logically shifting the result left once. If the last result is the same as the checksum byte then the packet is valid. Else it is discarded.

**Interractions :**

1.Read price:

Android : STX COM4 CSum ETX

Board : STX COM7 Digits Rows DP Pr11 Pr12 Pr13 Pr21 Pr22 Pr23 Pr31 Pr32 Pr33 Pr41 Pr42 Pr43 Pr51 Pr52 Pr53 Pr61 Pr62 Pr63 Pr71 Pr72 Pr73 Pr81 Pr82 Pr83 CSum ETX

The example is with maximum number of prices.

2.Send new price.

Android : STX COM1 DP Pr11 Pr12 Pr13 Pr21 Pr22 Pr23 Pr31 Pr32 Pr33 Pr41 Pr42 Pr43 Pr51 Pr52 Pr53 Pr61 Pr62 Pr63 Pr71 Pr72 Pr73 Pr81 Pr82 Pr83 CSum ETX

Board : OK

3.Change of time.

Android : STX COM2 HH MM CSum ETX

Board : OK

4.Change temperature(unused).

Android : STX COM3 Sign TT CSum ETX

Board : OK

5.Read parameters.

Android : STX COM5 CSum ETX

Board : STX COM8 P1 P2 P3 P4 P5 P6 P7 P8 P9 CSum ETX

6.Send new parameters:

Android : STX COM6 P1 P2 P3 P4 P5 P6 P7 P8 P9 CSum ETX

Board : OK

**Board Settings :**

1. Setting 1 – digits per row -> ( 1 - 6 )

2. Setting 2 - rows -> ( 1 - 8 )

3. Setting 3 – Place of decimal point -> ( 0 - 7 )

4. Setting 4 - Mode

- 0 – no clock/temperature

- 1 - temperature

- 2 - clock

- 3 - both

5. Setting 5 – Termomether mode

- 0 – with decimals

- 1 – without decimals

6. Setting 6 – brightness during the day -> ( 0 - 7 )

7. Setting 7 – animation at switch between termomether and clock

- 0 disabled

- 1 enabled

8. Setting 8 – brightness during the night -> ( 0 - 7 )

9. Setting 9 - reserved –> 0 by default