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1  /**
2
3  * C Library for the BME280 Sensor
4
5  * @author Samuel Ruhl, Alexander Meier
6  * @date 2017-04-04
7  * @file BME280def.h
8  * @brief Contains Functions for using the BME280
9
10 **/
11
12 #include <DAVE.h>
13
14 #ifndef BME280DEF_H_
15 #define BME280DEF_H_
16
17
18 #define BME280_ADDR 0x76
19
20 enum
21 {
22     BME280_REGISTER_DIG_T1          = 0x88,
23     BME280_REGISTER_DIG_T2          = 0x8A,
24     BME280_REGISTER_DIG_T3          = 0x8C,
25
26     BME280_REGISTER_DIG_P1          = 0x8E,
27     BME280_REGISTER_DIG_P2          = 0x90,
28     BME280_REGISTER_DIG_P3          = 0x92,
29     BME280_REGISTER_DIG_P4          = 0x94,
30     BME280_REGISTER_DIG_P5          = 0x96,
31     BME280_REGISTER_DIG_P6          = 0x98,
32     BME280_REGISTER_DIG_P7          = 0x9A,
33     BME280_REGISTER_DIG_P8          = 0x9C,
34     BME280_REGISTER_DIG_P9          = 0x9E,
35
36     BME280_REGISTER_DIG_H1          = 0xA1,
37     BME280_REGISTER_DIG_H2          = 0xE1,
38     BME280_REGISTER_DIG_H3          = 0xE3,
39     BME280_REGISTER_DIG_H4          = 0xE4,
40     BME280_REGISTER_DIG_H5          = 0xE5,
41     BME280_REGISTER_DIG_H6          = 0xE7,
42
43     BME280_REGISTER_CHIPID          = 0xD0,
44     BME280_REGISTER_VERSION          = 0xD1,
45     BME280_REGISTER_SOFTRESET        = 0xE0,
46
47     BME280_REGISTER_CAL26            = 0xE1, // R calibration stored

```

```
        in 0xE1-0xF0
48
49     BME280_REGISTER_CONTROLHUMID      = 0xF2,
50     BME280_REGISTER_STATUS            = 0xF3,
51     BME280_REGISTER_CONTROL            = 0xF4,
52     BME280_REGISTER_CONFIG             = 0xF5,
53     BME280_REGISTER_PRESSUREDATA       = 0xF7,
54     BME280_REGISTER_TEMPDATA           = 0xFA,
55     BME280_REGISTER_HUMIDDATA           = 0xFD
56 };
57
58 typedef struct
59 {
60     uint16_t dig_T1;
61     int16_t  dig_T2;
62     int16_t  dig_T3;
63
64     uint16_t dig_P1;
65     int16_t  dig_P2;
66     int16_t  dig_P3;
67     int16_t  dig_P4;
68     int16_t  dig_P5;
69     int16_t  dig_P6;
70     int16_t  dig_P7;
71     int16_t  dig_P8;
72     int16_t  dig_P9;
73
74     uint8_t  dig_H1;
75     int16_t  dig_H2;
76     uint8_t  dig_H3;
77     int16_t  dig_H4;
78     int16_t  dig_H5;
79     int8_t   dig_H6;
80 } bme280_calib_data;
81
82
83
84 void BME280_init(void);
85 float BME280_readHumidity(void);
86 void BME280_readCoefficients(void);
87 float BME280_readTemperature(void);
88 float BME280_readPressure(void);
89 uint8_t spi_rx8_bme280(uint8_t);
90
91 #endif /* BME280DEF_H_ */
92
```