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10
    * File
11
               : SerialTimer.c
    * Version
               : 1.0
13
14
15
16
    * Description : Emulate a serial port on a GPIO pin using a timer
17
    *******************
18
19
20
    * Author
            : Miguel Santos
21
    * Date
               : 14.09.2023
    ************************
23
24
25
    * MPLAB X
              : 5.45
26
    * XC32
               : 2.50
27
    * Harmony
               : 2.06
28
    ******************************
29
30
31
   #include "system definitions.h"
   #include "SerialTimer.h"
32
33
34
   /* Pin where the serial datas will be output */
35
   #define SERIAL PIN LATDbits.LATD0
36
37
   /st Pin to control the timer related to the serial emulator st/
   #define STR TMR ID DRV TMR INDEX 1
38
39
40
   /* Number of bits to transmit per data */
41
   #define SERIAL BITS 5
42
   43
44
45
   uint8 t strBuffer[STR BUFFER SIZE];
46
   uint8_t *strPointer;
   uint8 t *strLast;
47
   uint8 t bitPosition;
48
49
   50
51
52
   void STR Init( void )
53
54
      uint8_t i_buffer;
55
       for(i buffer = 0 ; i buffer < STR BUFFER SIZE ; i buffer++)</pre>
56
57
58
          strBuffer[i_buffer] = STR_BUFFER_DEFAULT;
59
60
      strPointer = strBuffer;
61
      bitPosition= 0;
62
63
   64
65
66
   void STR_AddBuffer(uint8_t *data, uint8_t size)
67
68
      uint8 t i data;
69
70
       for(i data = 0; i data < size ; i data++)</pre>
71
          strBuffer[i_data] = *(data + i_data);
73
       }
```

```
74
75
      strLast = strBuffer + size - 1;
76
77
    78
79
80
   void STR Start( void )
81
   {
82
      DRV TMR Start (STR TMR ID);
83
    }
84
    85
86
   void STR_CallBack( void )
87
88
    {
      SERIAL PIN = (*strPointer >> bitPosition) & 0x01;
89
90
91
    bitPosition++;
92
93
      /* Go back to lsb when reached limit */
94
      if(bitPosition>= SERIAL BITS)
95
96
         bitPosition= 0;
97
         strPointer++;
98
      }
99
100
      /* Disable timer when reached end of buffer */
101
      if(strPointer > strLast)
102
      -{
         DRV TMR Stop(STR TMR ID);
103
104
         strPointer = strBuffer;
105
      }
106
   }
107
   108
109
```