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1 ' Robotics with the Boe-Bot - MeasureBothPhotoresistors.bs2
2 ' Modification of the program TestBothPhotoresistors.bs2.
3 '
4 '
5 ' {$STAMP BS2}           ' Stamp directive.
6 ' {$PBASIC 2.5}        ' PBASIC directive.
7 '
8 ' -----[ Program Information about StampDAQ ]-----
9 '
10 '
11 ' SEROUT Sends serial data from programming port (P16)
12 '   [ ] defines data to be sent.
13 '
14 ' StampDAQ directives used:
15 '   DATA   Places data into the next row of Excel spreadsheet
16 '           Up to 10 comma-separated values may be stored.
17 '           Each value following "DATA," must be separated by comma-strings ",",
18 '           DATA, val1, val2, val3, ..., val10
19 '           DATA, SDEC val1, ",", SDEC val2
20 '
21 '           Ex: SEROUT sPin, Baud, ["DATA, TIME,", SDEC TK,", SDEC TC, CR] ***
22 '
23 '   LABEL   Places headings on the columns for rows A-J using up to
24 '           10 comma-separated labels.
25 '           LABEL, label1, label2, ... label10
26 '
27 '           Ex: SEROUT sPin, Baud, [CR, "LABEL, Time, K, C", CR] ***
28 '
29 '   MSG     Places a user-defined message in the StampDAQ message box
30 '           MSG, messages string (no commas in string)
31 '
32 '           Ex: SEROUT sPin,Baud, ["MSG, Temp Probe Data", CR] ***
33 '
34 '   CMD?    Queries StampDAQ for an instruction.
35 '           If "Download Data" is checked, "11" will be returned serially
36 '           If "Clear Stored Data" is checked, "22" will be returned serially
37 '
38 '           Ex: SEROUT sPin, Baud, ["CMD?", CR] ***
39 '
40 '           Must be followed by a SERIN command to retrieve the answer
41 '           in a variable
42 '
43 '           Ex: SERIN sPin, Baud, 500, timeout, [DEC CMD] ***
44 '
45 '   DUMPING  Informs StampDAQ a data dump is starting.
46 '           StampDAQ clears rows in preperation.
47 '
48 '           Ex: SEROUT sPin, Baud, ["DUMPING", CR] ***
49 '
50 '   DONE     Informs StampDAQ a data dump is complete.
51 '
52 '           Ex: SEROUT sPin, Baud, ["DONE", CR] ***
53 '
54 '   RESET    Informs StampDAQ that a reset of data is complete.
55 '
56 '           Ex: SEROUT sPin, Baud, ["RESET", CR] ***
57 '
58 '   TIME     Replaced by StampDAQ with real system time (DATE may also be used)
59 '           in DATA directive columns A and B only
60 '
61 '           Ex: SEROUT sPin, Baud, ["DATA, TIME,", SDEC TK,", SDEC TC, CR]***
62 '
63 '   CLEARSHEET  Clears columns A-J, rows 2 and on. (labels remain).
64 '
65 '
66 ' -----[ Variables/Constants/Pins ]-----

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67
68
69 TimeLeft      VAR      Word
70 TimeRight    VAR      Word
71
72 PRRight      PIN      3
73 PRLeft       PIN      6
74
75 PiezoSp              PIN  4          ' Speaker
76 FreqDetectable     CON  3000
77
78
79 ' Stuff for StampDAQ
80 counter    VAR      Byte          'Variable to represent data
81 sPin       CON      16          'Serial Pin - P16, Programming port
82 Baud       CON      84          'Baud mode for a rate of 9600, 8-N-1
83              'BS2P, BS2SX use 240 for 9600, 8-N-1
84
85
86 ' -----[ Initialization ]-----
87
88 FREQOUT PiezoSp, 2000, FreqDetectable          'Signal program start/reset.
89
90 SEROUT sPin, Baud, [CR]          'Send a lone CR to ensure StampDAQ buffer is ready
91
92 Configure:
93
94 SEROUT sPin, Baud, [CR, "LABEL, Time, PRRight, PRLeft", CR] 'Label 3 columns with Time, PRRight,
and PRLeft
95 SEROUT sPin, Baud, ["CLEARDATA", CR]          'Clear all data columns (A-J) in Excel
96
97 ' -----[ Program Code ]-----
98
99 SEROUT sPin,Baud,["MSG, Start Photo Info Download", CR]
100
101 FOR counter = 0 TO 100          ' Main routine.
102
103   PhotoReadings:
104     HIGH PRLeft          ' Left RC time measurement.
105     PAUSE 2
106     RCTIME PRLeft, 1, TimeLeft
107
108     HIGH PRRight          ' Right RC time measurement.
109     PAUSE 2
110     RCTIME PRRight, 1, TimeRight
111
112   SendReadings:
113     SEROUT sPin, Baud,["DATA, TIME,", SDEC TimeRight,",", SDEC TimeLeft, CR]
114
115     PAUSE 500
116
117 NEXT
118
119 SEROUT sPin,Baud,["MSG, End Photo Info Download", CR]
120
121 END

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