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1 -----
2 --
3 --          GNAT RAVENSCAR for NXT          --
4 --          Copyright (C) 2010-2012, AdaCore --
5 --
6 -----
7
8 -- This package provides the low-level interface to the AVR. Higher-level
9 -- abstractions used by application code will access this package, although
10 -- application code may access this package directly when necessary (e.g., to
11 -- call the Power_Down routine). All access to the current button and raw
12 -- inputs are through this package.
13
14 -- Note that this package initializes the AVR automatically.
15
16 with NXT.AVR_IO; use NXT.AVR_IO;
17 with Interfaces; use Interfaces;
18
19 package NXT.AVR is
20     pragma Elaborate_Body;
21
22     procedure Power_Down;
23     -- Send a power-down message to the AVR
24
25     procedure Set_Power
26         (Motor : Motor_Id;
27          Power : PWM_Value;
28          Brake : Boolean);
29     -- Send motor control message to the AVR
30
31     procedure Await_Data_Available;
32     -- Wait until at least one set of messages has been sent and received
33     -- from the AVR, such that the data below are now available to be accessed.
34     -- To be called once, prior to accessing the sampled values declared below.
35
36     -- The following are the sole means of acquiring the values. In other
37     -- words, abstractions and application code should not interact with the
38     -- AVR to get them. These objects are to be treated as strictly read-only.
39     -- They are updated periodically by an task internal to this package. Any
40     -- other updates will be overwritten by that task. Access to the individual
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41   -- values is thread-safe.
42
43   Raw_Buttons : Unsigned_16;
44   pragma Atomic (Raw_Buttons);
45   -- The most recent raw button readings received from the AVR.
46
47   Raw_Input : Raw_ADC_Inputs;
48   -- The most recent A/D input readings received from the AVR for the four
49   -- sensors. The type Raw_ADC_Inputs has Atomic_Components applied.
50
51   Raw_Battery : Unsigned_16;
52   pragma Atomic (Raw_Battery);
53   -- The most recent battery voltage reading received from the AVR. Units are
54   -- millivolts. The bit indicating use of rechargeable batteries is
55   -- included in the value.
56
57   procedure Set_Input_Power (Port : Sensor_Id; Power_Type : Sensor_Power);
58   -- Control the power supplied to an input sensor
59
60 end NXT.AVR;
61
```