Reading the FTC Battery Voltage

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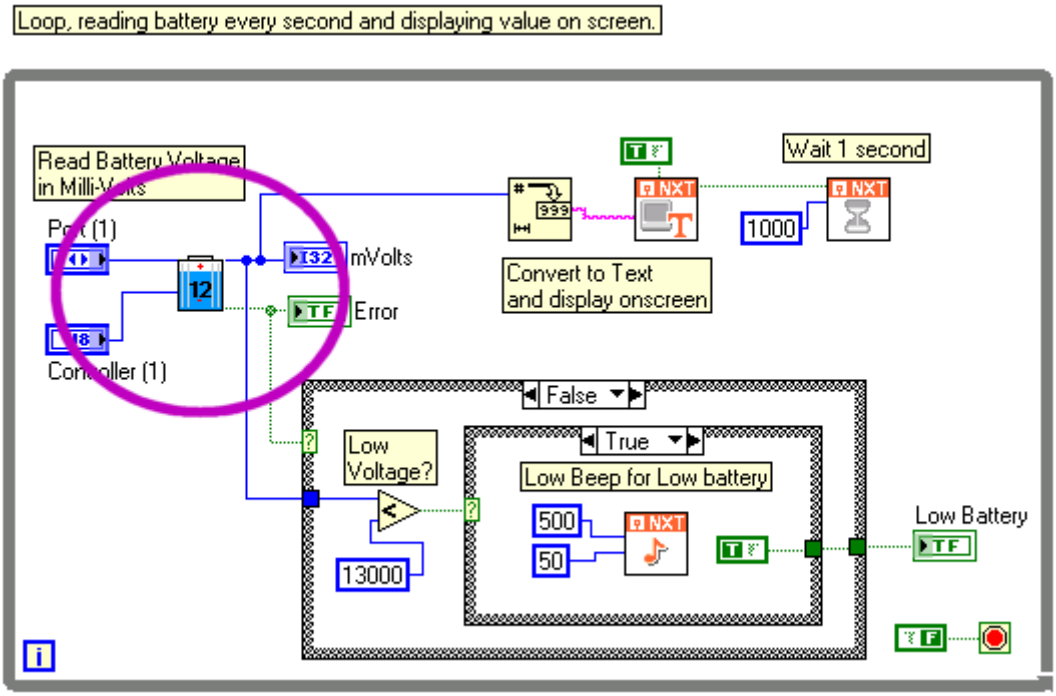
Forgetting to turn on an FTC robot's battery, or accidentally letting the battery voltage get too low is a huge fear of mine. So I created a VI that can be used to read the battery voltage.

ReadBatteryVoltage.vi talks to any HiTechnic Motor Controller and reads the battery level in milli-Volts (mV). There are 1000 mV in one Volt.

A side benefit of this control is that if the power to the HiTechnic controller is NOT ON, then ReadBatteryVoltage.vi returns an error status. So this one control can be used to ensure that the power is turned on, and there is plenty of voltage.

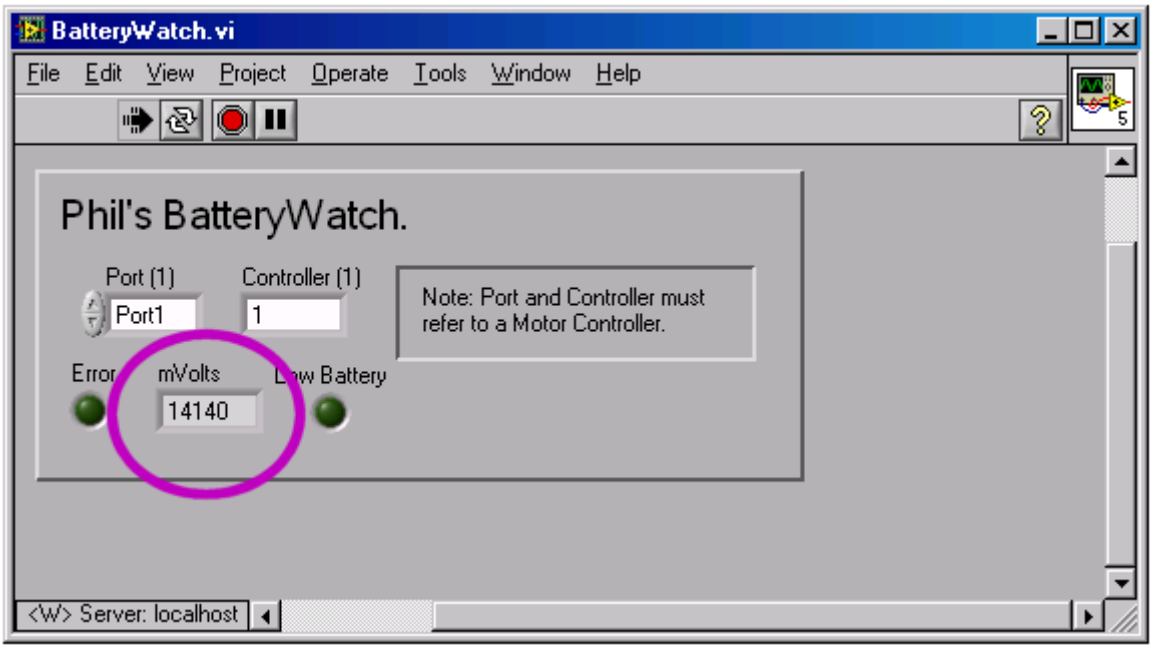
An example program is shown below. The ReadBatteryVoltage.vi is circled in the block diagram. It appears as a 12V Battery Icon.



In this example, the battery voltage is read once a second, and the current value is displayed on the NXT screen in mV. Several checks are also performed. If there is an error reading the battery (probably due to the power being off) a high pitch BEEP is sounded on the NXT. If the battery voltage is too low (less than 13 volts) then a low pitch BEEP is sounded.

Code like this could be put in the "disabled" loop of your program and it will alert you to an error condition while you prepare your robot at the start of a match.

If you run this program in "Diagnostic mode" while connected to your PC, then the LabVIEW display screen can also be used to see your battery status. This is shown in the image below.



The two files associated with this paper are:

BatteryWatchSample.vi	A sample LabVIEW program demonstrating the use of ReadBatteryVoltage vi.
ReadBatteryVoltage.vi	A LabVIEW vi for reading FTC battery voltage. This vi may be placed in your robot project folder, or in the FTC Toolkit folder.