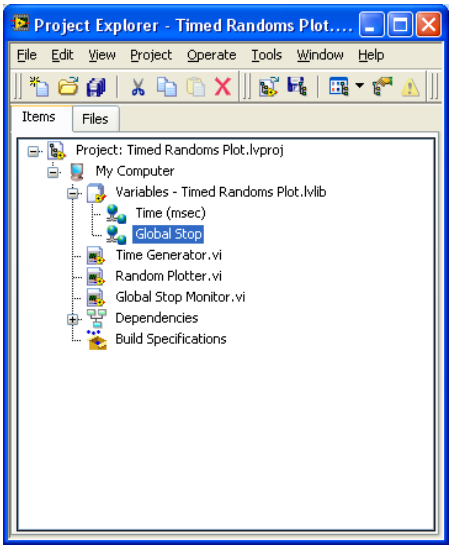
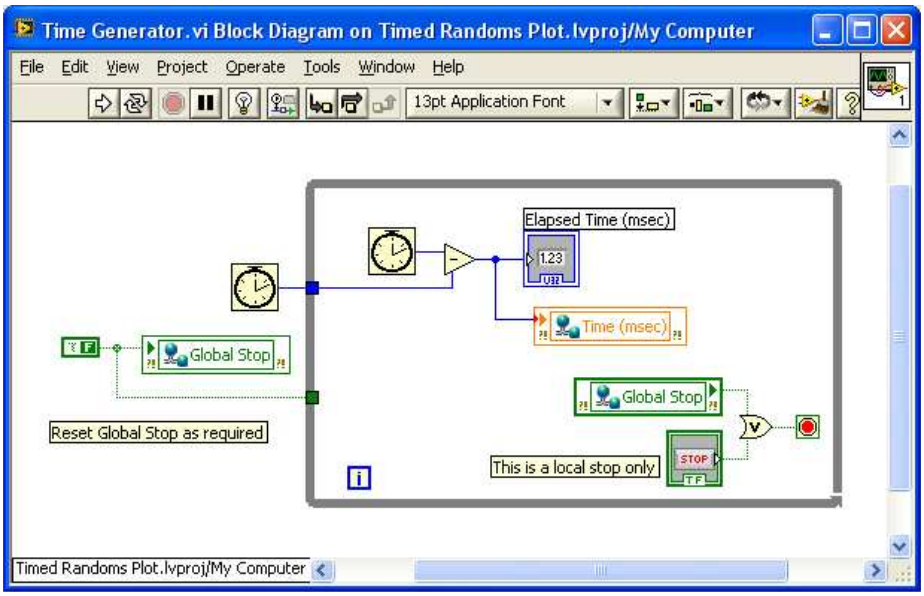
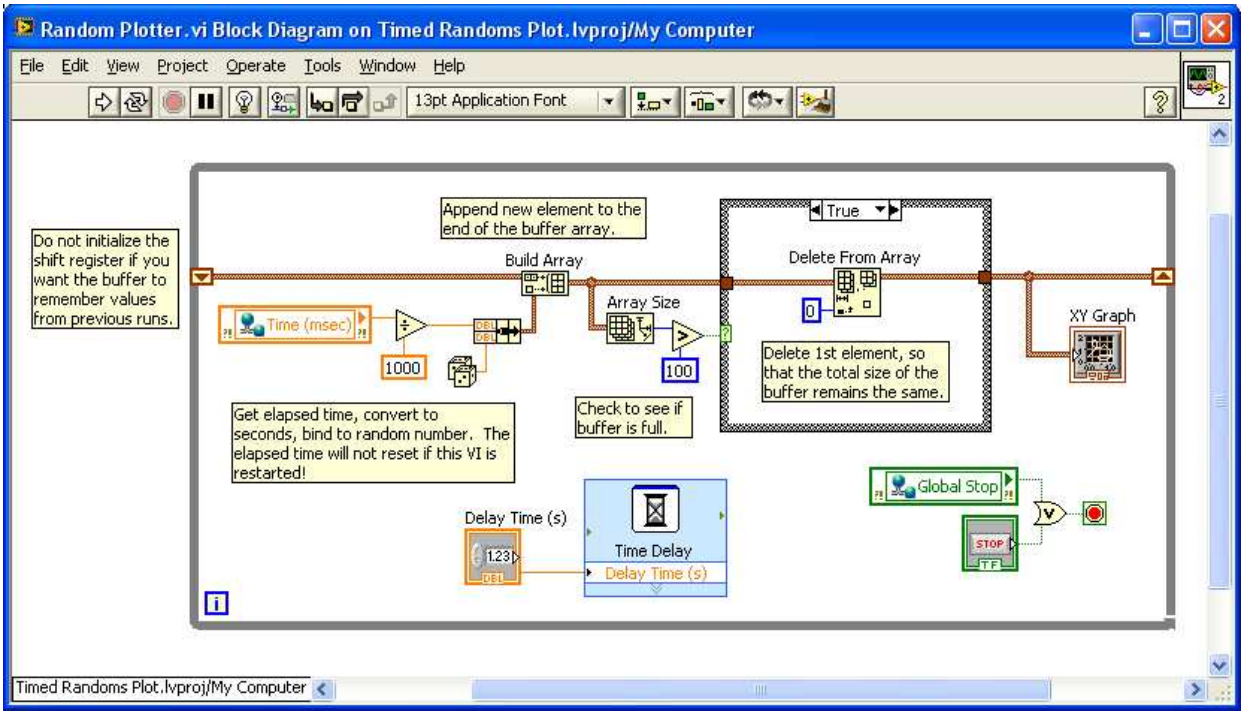
Worked Example: Timed Randoms Plot



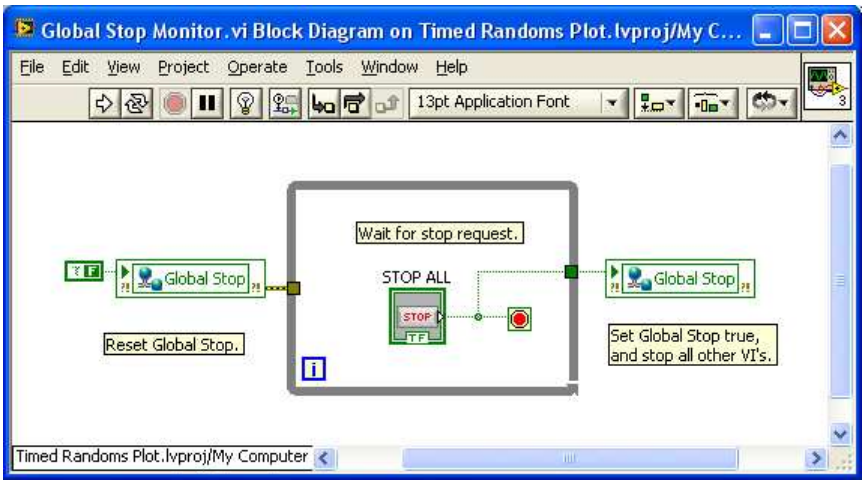
Whereas **local variables** can only communicate data within a single VI, **shared variables** can be used to communicate between VI's, and even between different computers and different programming environments (not just LabVIEW). Shared variables are actually managed by a software "engine" that runs outside of LabVIEW. As such, when working with shared variables, we need to work with the *LabVIEW Project* interface (see figure top right). As an example of the use of shared variables, create the VI's detailed below. The first generates elapsed time values and writes to a shared variable called *Time (msec)*:



As shown, the first VI also makes use of a shared variable called *Global Stop*. The second VI generates a continuously updated XY Graph of random numbers vs. elapsed time, where the latter is read from the corresponding shared variable. An array with shift register is used to create a virtual buffer for the graph, so that it operates like a regular chart. The *Global Stop* variable appears again too:



The third VI monitors the *Global Stop* control that terminates all three programs:



Observe the various behaviors of the VI's as they are individually stopped and started, particularly when the timing VI is not started first. This may not be a very practical example, but it does show a common method of group VI control.