Simulating Sensors by Playing Back Previously Recorded Data.

For testing your implementation, when you are not connected to the laboratory's network or the sensors are not being acquired, you can play data back, through a playback module.
The module simulates the sensors in your PC; it pushes measurements (recorded in previous experiments) in Possum's Database, as when you are in the Laboratory really connected to the robot. This fact is transparent for your applications in Matlab.

In order to run the simulator, follow the next steps:

1) Possum.exe must be running. If Possum.exe is not running, go to the folder named "Possum" and run the program "PossumFe(v636).exe" (or similar name). The program does not require any attention from you; but you need to keep this program running.
If your firewall (or other security protection program) ask you to allow (or not) Possum to have access to the network, choose any answer (e.g. NO. We need to connect to the network only when we actually interact with the hexapod)

2) Run the play back module from the folder where it was provided (named "PlayData". The name of the program is "PossumSimulator07.exe" (or similar name).

3) Run your Matlab applications as usual. You could even have many Matlab programs running, all of them would be able to have access to the system, simultaneously.

Playing Back Continuously

The playback module can run continuously; when it reaches the end of the dataset it re-starts (goes to the beginning). In order to set this behavior you must change a setting in the configuration file. See the provided configuration file for explanation (file "simu.cfg").

Attention:
However each time it repeats the simulation the timestamps of the measurements are also repeated, i.e. it goes from the initial time to the final time at every playing instance. This may confuse your applications if those consider the timestamp when processing the measurements, as those may infer the time went to the past!

Operating the Simulator:

The module offers some basic commands (in its text terminal/console):

* Press ***s*** to Stop / Pause playing back process.
* Press ***c*** to continue playing back process.
* Press ***t*** to see the current time of simulation
* Press ***j*** to jump to a certain time in the simulation process. The program will stop and ask you the desired time (expressed in seconds, relative to the starting time of the dataset).
* Press ***e*** or ***b*** to exit the program (exit / bye)
* Press the key ***r*** three consecutive times (***r r r***) for resetting the simulator (it goes to the starting point of the dataset).
* Press the key *f* twice in order to choose another dataset to be played back.

Note1: In the Laboratory you DO NOT NEED to run the simulator if you are connected to the system and the sensors, and the sensors server are in operation.
The simulator is intended to be used when your computer is not connected to the MTRN4110/4010's network (in the Lab) or because the sensors are not being shared in the system.

Note2: DO NOT RUN more than one session of the simulator simultaneously. Except in particular cases, it DOES NOT MAKE ANY SENSE.
(Similarly, you do not need to run more than one Possum instance in your computer).

Note3: You may run more than one session of Matlab or other client applications.

Note4: Alternatively, you can send commands to the simulator module, from your program, using certain API functions. See examples provided by the lecturer.

Note 5: Possum.exe and Simulator.exe, consume marginal resources (CPU and memory). In addition, you can run both programs, under low authority rights, in your computer; if security is a concern.
(no need to run these program under administrator or other high user rights!)

Questions: Via MTRN4110 and MTRN4010's Moodle Forums or email to lecturer (j.guivant@unsw.edu.au)
