# S N L  Q U A D P O D

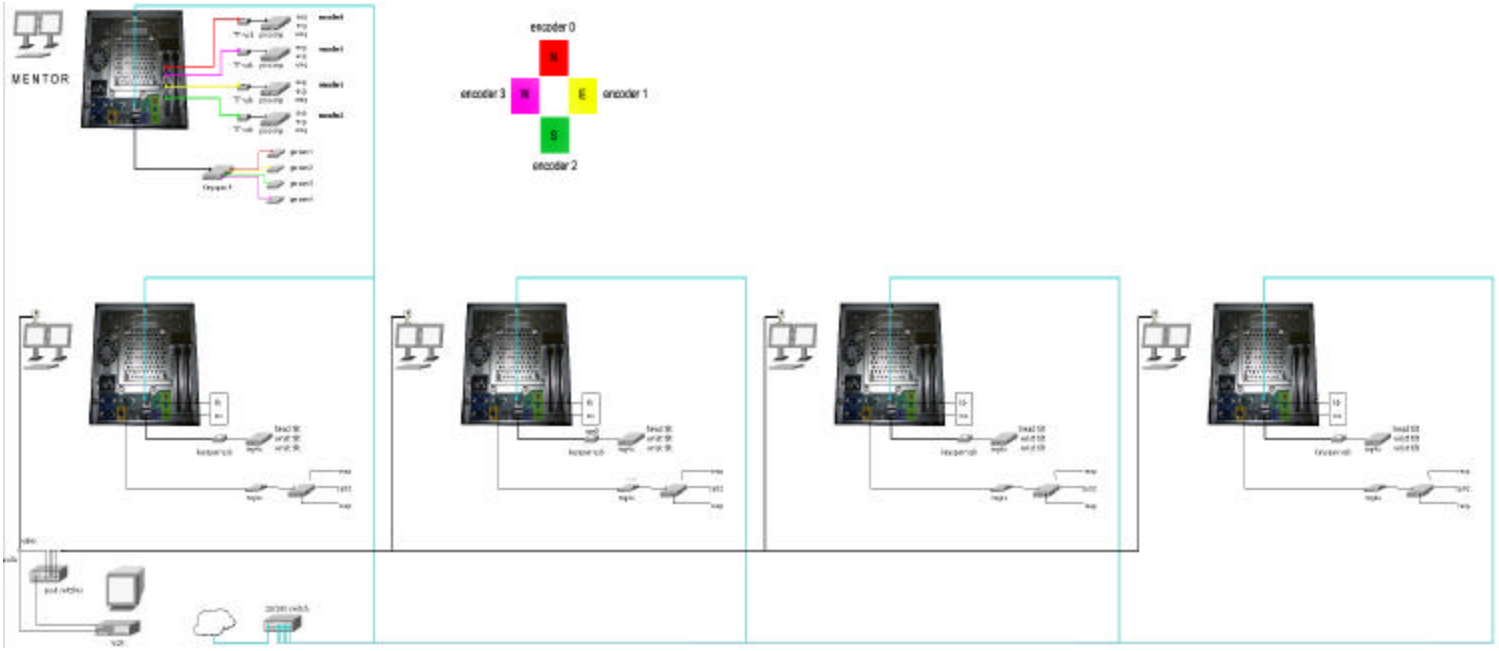


Downloadable ZIP file of this manual is located here.

## 01. OVERALL STRUCTURE

The Quadpod consists of:
 - 1 server machine "MENTOR" and
 - 4 client machines "NORTH", "EAST", "SOUTH" and "WEST", collectively referred to as "CLIENT(S)"
These five machines are connected as a LAN by a 10/100 switch,
which also provides connectivity to the internet through a spare port if required.

All five machines have similar hardware and performance characteristics, namely:
 -shuttleX sn41g2 motherboard with onboard nvidia 128mb gpu
 -amd athlon 3000xp barton processor
 -1gb ram
The machine MENTOR also includes a 4 port usb2 PCI card for connection of procomp units




Full Res image: 3000x888 pixels

---

## 02. HARDWARE / SOFTWARE ON EACH SYSTEM

### 02.1 Hardware connected to the MENTOR server
-1 keyboard

-1 mouse
-2 LCD flatpanel screens
-4 procomp TT-usb connectors and associated procomp infinity systems
-4 Mindtel GSR sensors

02.2 Software running on MENTOR
-Windows 2000 operating system
-Mindtel Neattools v2003
-AboutTime: network clock syncronization client
-AboutTime: local network clock syncronization server
-Mindtel Timestamp server
-Mindtel Timestamp client

**02.3 Hardware connected to each CLIENT machine**
-1 Keyboard
-1 Mouse
-1 headset earphone/microphone combination
-2 LCD flatpanel screens
-2 Mindtel Tng4x Interface boxes

One Tng4x connects to 3 tilt sensors that attach to the head and wrists of client machine operator.
The second Tng4x connects to a Respiratory monitor and Nonin Spo2 interface.
All data for each pod is displayed and recorded locally on each respective client system.

**02.4 Software running on each pod client**
-Windows 2000 Operating System
-Mindtel Neattools v2003
-UbiSoft RainbowSix 3: Raven Shield game
-AboutTime : local and network clock synchronization client
-Mindtel Timestamp client
-Dragon Naturally Speaking voice recognition software

---

**03. STARTUP INSTRUCTIONS**

Power on all 5 shuttles (four clients and Mentor).
Turn on all 4 Procomm devices in the following order: NORTH, EAST, SOUTH, WEST.
These should correspond to encoders 0,1,2, and 3 respectively.
Do not wire up sensors yet.

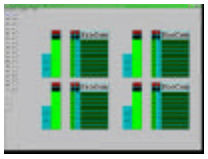
**03.1. MENTOR STARTUP SEQUENCE** (seq 1/2)

Open the "SANDIA-STARTUP" folder, located on desktop and identified by the key icon.
The shortcut files are named in order of use from 000-003, ie:
000-procomp-test
001-timestamp-master
002-timstamp-localloop
003-neattools-masterrecord

Open the procomp test file, by doubleclicking on the *000-procomp-test* shortcut

The procomp file has four quadrants, each representing a Pod. To verify that you are

monitoring the correct Pod on screen as in the system, turn on one quadrant. Then, have each participant, one at a time, take turns touching the EMG sensor on their connected Procomm. Data should change on the appropriate corner of the NTL file, as represented by North/South/East/West in the system.



You may need to calibrate using the right hand button above the calibrate row of modules to see the data change. If all four users have changed data and there is no apparent connection to the NTL, enable calibration of the data and retry.
When appropriate corner is found, repeat section for every other procomm group (east/west/south).
Procede to attach all requisite electrodes to subjects as per experimental protocols.

Make sure that you close (exit) the procomp test file.

Start time server by doubleclicking on *001-timestamp-master* shortcut

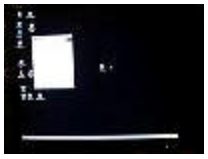
Start local time client by doubleclicking on *002-timestamp-master* shortcut
In the console window of the local time client, a message should indicate a connected socket.

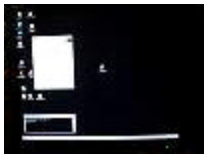
Start the Mentor ntl file by dubleclicking on *003-neattools-masterrecord* shortcut.
The Mentor NTL file will collect the GSR readings as well as start the recording of Procomp data.
Do not do anything other then opening the file up yet.
Mentor is now waiting for the client machines to be ready.

### 03.2. CLIENT STARTUP SEQUENCE

Open the "SANDIA-STARTUP" folder, located on desktop and identified by the key icon.
The shortcut files are named in order of use from 001-003, ie:

001-timestamper
002-neattools
003-play-ravenshield





On the Pods/Clients, from desktop folder called Sandia:
press 1 to start time client. It should acknowledge in a console window that a socket has been established.

Start the client neattools file by doubleclicking on *002-neattools-recorder* shortcut

A Com On button has been added to each of the client machines. The Com On needs to be pressed to activate the TNG data input into the Client computers. The com on is activated after turning on the Neattools client file, and before turning on the team game. Communication on and off

is determined by the display of data showing in the graph objects on the right hand side of the Neattools window.

Wire up participants with
-Tilt Sensors
-GSR
-Respiration
-Spo2
You should see tng4 data changing when you open the file from the Respiration (channels 2-3), Spo2 (channel 1 and 4) and Tilt sensors.

You can re-calibrate each sensor if necessary by clicking the Calibrate button to the left of the displayed data. If calibration is necessary, verify that the Neattools file is in Calibrate, not Direct mode at the top of the window.
Place Neattools in middle of primary screen if the user wants to see data displayed in the secondary monitor. Neattools will work equally well minimized at the bottom of the screen.

Verify that the properly color coded ravenshield CD-ROMs is in the cdrom drive of the client machine.
Start the game by doubleclicking on *003-play-ravenshield* shortcut

### 03.3. MENTOR STARTUP SEQUENCE (seq 2/2)

Master ntl:

A synch button has been added to Mentor to synchronize the record number recorded by mentor and the 4 clients. This synch button needs to be pressed prior to hitting the big red button on the Mentor Neattools file to preset the record number.

Press big red on/off button to start recording on everything
(pops up a dos window which is the procomp stuff) turn this off first when switching off recording. (not imperative)

### 03.4. Client SHUTDOWN SEQUENCE

Prior to closing the Neattools file, make sure to turn com off by pressing the Com On button again,
effectively turning off all tng communication. Communication on and off is determined by the display of data showing in the graph objects on the right hand side of the Neattools window.

Close the Neattools file and DO NOT save changes upon close.

Close the Time Synch Client Dos window.

### 03.5. MENTOR SHUTDOWN SEQUENCE

Hit the "Big Red Button" to turn off Recording.

Close the Neattools window, DO NOT SAVE the file.

Close all subsequent DOS windows
-Procomm
-Time Synch Client
-Time Synch Server

### 03.6. DATA COLLECTION

On Mentor (GSR and Procomm):

GSR Recorded data is located in **C:\Mindtel\Neattools** (Example: **GSR_record_set_0**)
Procomm Recorded data is located in **C:\Mindtel\Procomm** (Example: **Mon_Jul_7_12.51.08_2003_AM**)

On Client (TNG data, I/O):

Stored Neattools data is located in **C:\Mindtel\Neattools** of each client machine, with a keyword before the record number to designate which client machine the data originated on (Example: **North_record_set_0** is from the North client machine, record number 0)

### 03.7. NEATTOOLS DATA FORMAT

On Mentor (GSR):

0 North
1 East
2 South
3 West
4 Hour
5 Minute
6 Second
7 INTENTIONALLY EMPTY

On Client (TNG data, I/O):

IO 6B Data Format

0 Character Typed
1 Mouse X
2 Mouse Y
3 Left Button
4 Right Button
5 Pulse SPO2 Red Light
6 Respiration 1
7 Respiration 2
8 Pulse SPO2 IR Light
9 Tilt Sensor 1 Axis A
10 Tilt Sensor 1 Axis B
11 Tilt Sensor 2 Axis A

12 Tilt Sensor 2 Axis B
13 Tilt Sensor 3 Axis A
14 Tilt Sensor 3 Axis B
15 Accumulator from Mentor
16 Local Time Hour
17 Local Time Min
18 Local Time Second
19 Baseline Synched Spo2 Waveform

---

**04. TROUBLESHOOTING**

The majority of system failures that will occur with Quadpod will result from either a missed step or an unplugged cable. Please verify cable integrity, as well as restarting the machine that appears to be causing issue.

*Windows doesn't accept my login password*
-The username/password set at time of installation was "sandia"/"sandia" without quotes.

*I can't get to the internet or Mentor.*
-Verify the network integrity of your connection.
-Verify that the hub in the bottom of the QuadPod has power, and that the link lights indicating a plugged in cable are lit. If all lights are off verify power to Hub. If one link light is off, restart the connected client. If the machine is still off, replace your network cable.
-Verify your Network settings.

*I can get to the internet, but I can't get to mentor (network neighborhood).*
-Verify windows file sharing is turned on in Mentor.

*When I turn on the Big Red On Button in Mentor NTL file, I don't see the socket connection on X client machine.*
-Restart Client Machine.
-Check IP of client machine to make sure it matches the ip in the socket module that isn't connecting.

*I don't see the Procomm data in the first step of Mentor Startup.*
-Verify that the Procomm is turned on and connected.
-Check battery level on Procomms by verifying a solid blue light on each procomm, instead of a blinking blue light indicating low battery level.
-Verify that the sensors are plugged into the Procomm. Data will NOT show up in Procomm setup until sensors are plugged in.
-Restart the NTL File (step 3 of Mentor startup).
-Restart the PC

---

**05. MAINTENANCE REQUIREMENTS AND METHODS**

The client and server machines will require the same maintenance as any other windows platform pc. Please run scandisk and virus checks regularly, as a damaged or infected machine can hinder system operation.

Periodically check the battery levels of all battery operated devices. The Procomm will blink blue when the AA's batteries need to be changed. The GSR devices have a red LED that will turn on when enabled by the Mentor system. If the red light doesn't turn on, and all cables are properly attached, change the 9v battery located in the back of the system.

---

## 06. ELECTRODE GUIDES

Please refer to the Procomp manual for information about particular electrode montages.
The procomp manual can be found in the procomp carry case side pocket.