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<td>12550 West Frontage Rd.</td>
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Contractor's Progress, Status and Management Report --
Monthly Progress Report

Period Covered by the Report
1 May through 31 May 2000

Date of Report: 13 June 2000

Wrist Interactive Device for Wearable PC
SBIR Phase II Topic N95-137
Contract No. N00421-97-C-1293
Dollar Value $1,708,653

ViA Inc.
12550 West Frontage Road
Burnsville, MN 55337

Sponsor
Charles D. Caposell
Naval Air Systems Command
AIR-4.5T

Data Item No. 003
Contract Reference Item 0003
Authority - Data Acquisition Documentation No. DI-MGMT-80227
Monthly Report No. 26
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Commander
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Attn: Mr. Charles Caposell, Code 4.0T
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Department of Computer and Information Sciences
273 Wissink Hall, Box 225
Mankato, MN 56001
1. Progress & Plans

**Hardware**

**Phase 3/4 Boards**
The rigid-flex boards were delivered and populated. We found two footprints that did not match the respective parts. One of these is easily resolved, while the other, an adjustable regulator for the core voltage of the SA1110, may require a new package. We are currently searching for a regulator that will fit on the available footprint. At the same time, however, we are attempting to place the larger package on the board and jumper to the pads. This may be a better solution if we don’t run into mechanical interference problems.

**RF**
The Moteco antennas have been ordered and delivered. The layout of the Phase 4 RF board has not begun yet, however.

**Audio**
Layout for the Phase 4 audio board has begun.

**Optics**
All design work has been completed for the optics. We are awaiting the rest of the system to be completed to test the optics system performance. All the imaging and Fresnel lenses have been delivered, and beamsplitters are on order.

**Battery System**
The chargers and the battery cells are on order. The layout of the battery board has not begun yet.

**Switch Board**
Layout of the switch board is completed. A perspective view of how it fits in the assembly is shown in Figs. 1 and 2.

**Mechanical Design**
The mechanical design tasks that have been completed are:

- On/Off switches mounting in main case
- Completion of light box design
- Mounting of lens and finalization of plastic case
- Audio module case (see Figs. 3 and 4)

The mechanical design tasks that are currently being worked on are:

- RF module case
- Battery case, battery charger, and attachment to battery module on wrist band
- Wrist band clasp

Final mechanical parts of the WID prototypes are being ordered as their design is completed and have been arriving at ViA from the molder every week, as they are built.
Fig. 1 Switch assembly

Fig. 2 Switch board in WID assembly
Fig. 3 Mounting of speaker and microphones

Fig. 4 Audio module case
Software

Bluetooth Drivers
The Bluetooth driver for Windows CE is completed.

The Bluetooth driver on the Windows 98, host side, is completed.

Audio Drivers
Work is underway to develop a CE audio driver to allow communication between the StrongARM processor and the DSP. Andrea Electronics is waiting for us to finalize the microphone locations in the audio case in order to fine-tune their phase-filtering software.

High-Level CE Software
Work has begun on the high-level CE application that re-renders the graphical commands on the WID screen.
2. Project Cost
Cost incurred for the period and total cost, without G&A and Fee:

<table>
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<th>Current Month’s Cost*</th>
<th>Cumulative Cost</th>
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<tbody>
<tr>
<td>$47,509</td>
<td>$1,411,866</td>
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* Current month cost is 1 May through 31 May

Person-hours for the period and cumulatively:

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<th>Cumulative Hours</th>
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<tbody>
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<td>469</td>
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3. Schedule and Staffing
Notice that the funds expended on this project have now exceeded the amount of the grant. As previously stated, ViA is committed to completing the project and deliver the WID prototypes as agreed upon in the original contract. Work is therefore progressing at a fast pace, with three software engineers, one mechanical engineer, a layout engineer, and the PI logging time to this project.

Dean Oliver, the electrical/RF engineer who developed most of the electrical design for the WID, left ViA in mid-May. Before leaving, however, he completed the electrical design of all the Phase 4 boards, which are now in layout.
Expected delivery of the 8 WID prototypes is in late July, if the Bluetooth Digianswer cards do not have any more schedule slips.

4. Author
Paolo Dini
ViA, Inc.
12550 West Frontage Road
Burnsville, MN  55337

(952) 736-3145
(952) 736-5944 (Fax)
pdini@flexipc.com