PROPOSAL TO THE COMPUTATION ADVISORY COMMITTEE FOR SUPPORT FROM THE CENTRAL POOL STUDENT COMPUTER FEES

PROJECT TITLE: Integrating Mobile Video Conferencing into the Horticulture, Plant Pathology, and Entomology Curricula

CAC PRIORITIES THIS PROPOSAL ADDRESSES
This proposal addresses the first and second priorities for funding.

PROPOSING UNITS:
Department of Horticulture
Department of Plant Pathology
Department of Entomology

ADMINISTRATIVE REVIEWING UNIT: College of Agriculture and Life Sciences

ADMINISTRATORS:

Dr. Wendy Wintersteen
Endowed Dean
College of Agriculture and Life Sciences

PROJECT PARTICIPANTS:

Dr. Jeff Iles
Professor and Chair
Department of Horticulture

Dr. David Minner
Professor
Department of Horticulture

Dr. Donald Lewis
Professor
Department of Entomology

Dr. Mark Gleason
Professor
Department of Plant Pathology

Mike Meiers
Undergraduate Student
Department of Horticulture

Mark Hoffmann
Systems Support Specialist III
Department of Horticulture

PROJECT LEADER:
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(515) 294-5726
dminner@iastate.edu
PROJECT OVERVIEW AND EXPECTED BENEFIT

Description and Intended Purpose

During 2008, Dr. Minner’s Horticulture 453 class featured guest lecturers from across the United States. Instead of catching a flight, reserving a motel room, and traveling to/from the class, these guests sat in the comfort of their own local offices, while they interacted with students in Horticulture Hall. Talk about the success of the endeavor spread like wildfire throughout the department and beyond. With the costs of travel and looming budget cuts, this type of mobile video conferencing technology seemed well-suited to the instructional needs of university students.

Students in horticulture, entomology, and plant pathology departments began requesting the use of mobile video conferencing equipment in other instruction venues. Being able to interact with career models and mentors, who are not normally accessible, opened new doors to learning. The students gained new perspectives as they interacted with professionals within their every day working environments.

We live in a visually oriented world. Net-generation students arriving on campus are already accustomed to seeing and interacting in real time in their personal lives. Extending ideas in this attractive and familiar format promotes student learning and information retention. Video conferencing using the Polycom equipment will allow us to bring this visual world to students in a classroom environment regardless of location.

Since the cost of renting the video conferencing equipment is a significant expense for individuals, this proposal is a request for funding in the amount of $14,496.00 to purchase a mobile cart containing a Polycom VSX-7400e, a forty inch LCD monitor, an Elmo digital visual presenter, a NEC LCD projector, and a Sony Handycam video camera (Appendix, Figure 1). This equipment will enable us to connect students with teachers in remote locations for real-time visual and audio interactive communication and instruction.

General Student Benefit

Mike Meiers is an undergraduate student in turfgrass management at Iowa State University: “Dr. Dave Minner’s Sports Turf Management class was very insightful to me as a turfgrass major. The video conferencing that Dr. Minner implemented in class was helpful and very informational. It gave me an opportunity to see how real world professionals in the turf industry conducted business and demonstrated important strategies relating to many aspects of management in their careers. It also helped me and other students to network with turfgrass professionals across the United States and acquire information regarding possible internship and job opportunities. The video conferencing technology was very fascinating and enjoyable. It got students involved in the lecture and eliminated the stresses and costs involved in getting a guest speaker from abroad to come and speak at the university. Dr. Minner’s Sports Turf class was the first class where I had been exposed to the video conferencing technology, and I would like to experience it in other future classes at the university.”

We have identified twelve courses that initially will be using the equipment for student instruction, which will reach more than 300 university students each semester. We have also identified additional venues where this mobile Polycom cart technology can be implemented:

- Internships: Students on an internship at a remote site can interact with their major professor and internship mentor during the internship as opposed to the current one page questionnaire
evaluation given after the internship. This enhances the student, advisor, and industry relationship, i.e. a live feed between a student intern at a remote site and a faculty advisor can be used for field identification and solving of turf pest problems. Polycom-based video conferencing allows for this type of real-time high quality dynamic interaction.

- Employers can conduct real-time interviews of prospective interns from Iowa State University. This gives a competitive edge to students seeking internship and employment opportunities.
- Students easily identify with industry guest speakers and quickly realize the skills and self image that they need to acquire their first job.
- Graduate and undergraduate student meetings normally limited to on-campus locations can now be expanded to include interactions with people at a distance without sacrificing the intimate quality of face-to-face interactions. For example, this technology allows the graduate student to select program of study and thesis committee members from anywhere in the United States (and possibly the world) to enhance their educational experience at Iowa State.

Innovation

Before the availability of high bandwidth Internet connections, high quality video conferencing occurred only in expensive venues, such as the ICN, which used proprietary wiring. Now, it is possible to use Polycom technology to achieve similar results at a significantly reduced cost.

Rather than limiting video to a small grainy window as is done in Adobe Connect or Microsoft Office Live Meeting, the mobile video conferencing technology that we are requesting funding for allows video to be displayed in a larger, more highly detailed view and can interface with other devices, such as the digital Elmo, so that objects can be manipulated in real time and in high definition (Appendix, Figure 3). Another of the benefits of video conferencing is the ability of participants to observe and react to body language, facial expressions, and intonations of voice, which makes student-teacher interactions much more effective in instructional venues.

The portability of the Polycom cart technology allows it to be used in a variety of venues, such as in a laboratory, where microscopic slide contents can be shared with students. Another venue would be a live feed from remote field locations for instructional purposes.

Contribution to Instructional Program

Using video conferencing in instruction addresses one of the education goals in Iowa State’s 2005-2006 Strategic Plan, namely to “strengthen students’ critical thinking, creative abilities, and communications skills.”

This technology will give instructors the ability to explore and use these new learning tools, while increasing student access to other people, places, and things that are now only a dream, due to geographical proximity or cost. Instructors will not only learn new technology skills, but will also gain a better understanding of the Net-generation students now filling their classrooms.

Cost Efficiency

Traditional face-to-face meetings are expensive and often limit the quality of the personnel to those who are physically available to attend these types of meetings. Video conferencing eliminates travel cost and opens the door to a broader and more diverse group of participants. For example,
graduate students are usually limited to faculty access within their local university system; however, video conferencing has the potential to connect with anyone in any location.

**Availability to Students**

The mobile Polycom video conferencing cart will be made available to students and instructors from 8 AM to 8 PM, Monday through Friday.

**Integration with Existing Facilities**

The full itemized budget includes a second video source and LCD projector that would allow us to use the mobile video conference cart in any classroom on campus (Appendix, Figure 2). The minimum budget does not include the NEC LCD projector or the Sony Handycam and therefore does not allow for integration with existing classroom environments on campus.

**SUPPORT AND MAINTENANCE**

The Polycom equipment will be purchased with a three year warranty. Once the warranty has expired, the cost for maintaining the equipment will become the responsibility of the Department of Horticulture. The Department of Horticulture’s System Support Specialist will provide ongoing setup and training support for the equipment.
Table 1. Full Itemized Budget

<table>
<thead>
<tr>
<th>Description of Item</th>
<th>Quantity</th>
<th>Unit Cost</th>
<th>University Pool</th>
<th>Horticulture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polycom VSX-7400</td>
<td>1</td>
<td>$6,000.00</td>
<td>$6,000.00</td>
<td>$0</td>
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<tr>
<td>3-year Polycom Warranty</td>
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<td>Multipoint Software Option</td>
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<tr>
<td>Forty Inch LCD Monitor</td>
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<tr>
<td>Elmo TT-02s Digital Visual Presenter</td>
<td>1</td>
<td>$497.00</td>
<td>$497.00</td>
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<tr>
<td>Sony Center Channel Speaker</td>
<td>1</td>
<td>$199.00</td>
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<tr>
<td>DVD Recorder</td>
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<td>$250.00</td>
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<tr>
<td>Middle Atlantic Equipment Cabinet</td>
<td>1</td>
<td>$400.00</td>
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<tr>
<td>Chief PPC2000 Presenter Cart</td>
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<tr>
<td>NEC NP2150 LCD Projector</td>
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<td>Sony Handycam and Tripod</td>
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<td>Materials – Cable and Connectors</td>
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<tr>
<td>Labor – Installation and Setup</td>
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Total Request $14,496.00 $3,048.00

Table 2. Minimum Feasible Itemized Budget

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Total Request $10,846.00 $3,048.00
APPENDIX

Figure 1: Mobile Polycom Cart

Figure 2: Use of mobile cart in a classroom

Figure 3: Elmo Digital Visual Presenter