Provost’s Learning Innovations Grant for Faculty
Request for Full Proposal
2006-2007

Please hand-deliver your completed grant proposal (4 pages, plus attachments),
the original plus 10 copies, to:
Susan DeWoody, 1530 Wallace (5)
by 4:30 p.m.
No hand written proposals will be accepted.
Notification of awards will be made by Friday, April 7, 2006.

Project Title:

Applicant(s):

<table>
<thead>
<tr>
<th>Name</th>
<th>Marla Schwepp</th>
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<th>475-2754</th>
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<tbody>
<tr>
<td>Dept.</td>
<td>School of Design</td>
<td>College</td>
<td>CIAS</td>
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<td>Paul Stiebitz</td>
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<tr>
<td>Dept.</td>
<td>Industrial and Systems Engineering</td>
<td>College</td>
<td>COE</td>
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Request for Full Proposal Requirements

Pages 1-4

1. Animatronic Character

*Animatronic* - The technology employing electronics to animate motorized puppets.

*Audio-animatronics* or just animatronics is a form of robotics created by Disney's Imagineers for several shows and attractions at Disney theme parks, and subsequently expanded on and used by other companies. The robots move and make noise, generally speech or song. An animatronic robot is different from an android in that an animatronic works off prerecorded moves and sounds, rather than processing external stimuli and responding to them.

This is a collaborative project between design and engineering students. It reflects a relationship found frequently in the real world, which is rarely available in school. The goal of the project is to create a visual design for an animatronic character (design students), then design the mechanisms to make the character move (engineering students) and implement the design (design and engineering students). The motion of the character will be controlled by computer. The final result will be a 'performance' by the character. The funding is necessary to provide the elements to make the character move and to create the outside covering.

2. Targeted learners or population (include cluster, departments, year level, number of learners impacted).

Design and engineering students are the targeted learners. A team of students (4-5) in the Computer Graphics Design program will design an animatronic character including the look of the character and the way they would like the character to move. The design will be submitted to the Multidisciplinary Engineering program at RIT, where teams of senior engineering students (3-5) take on projects defined and supported by industry. This grant will supply the equivalent of the financial support provided by the industry partner.

3. The number of students who will be affected.

A team of four to five design students will design the character and create the outside part of the character that meshes with the mechanism that controls the character. They will also script the performance for the completed character. A team of three to five senior engineering students, from mechanical and electrical engineering, will design and implement the control mechanism for the character in collaboration with the design students. These multidisciplinary engineering projects happen every year and seniors are required to participate. Prof. Paul Stiebitz in Engineering and Prof. Marla Schweppe in Design discussed the potential for this project in the fall quarter. They are both anxious to encourage interaction between students in CIAS and COE.

4. Anticipated impact on teaching and/or learning.

Many Design students in CIAS are gaining interest in physical computing. Physical computing is computing where inputs or outputs are from or to mechanisms other than keyboards and mice. While interest exists in this area, limited knowledge in creating the control mechanisms to implement such projects is limited. The ideal solution is collaboration with Engineering students who have that expertise. This is the natural choice in the working world as well. For the Engineering students it will provide an
opportunity to work on a project that is a little different from the run of the mill. They will be working with students for whom the aesthetic component of the project rather than just the function is critical. This is also typical for many projects in the work world.

5. How will your project impact student success (i.e., retention)?

This is the type of project that make learning ‘fun’. The end goal of a performance with the animatronic character is an opportunity to show students and prospective students that technology can be fun as well as serious. Students on both of the creative teams gain exposure to perspectives different from their own. That valuable experience carries into the workplace where they come prepared to work with others with divergent area of expertise.

6. How you will measure the impact, how you will report your findings, and what you will share about your project in a faculty forum.

The primary way of sharing this experience will be via the performance at the end of the project. In addition a presentation will be scheduled to share the pedagogical impact of the project.

7. Present a rationale for your project, as it ties to the intent of the grant, including:
   a. why it is not part of regular college business
   b. its relevance to required cluster, college, and/or department competencies
   c. describe how your project is relevant to other faculty and what you think it would take to transfer your success to other faculty
   d. relevant credentials, experience of involved faculty/staff
   e. describe how this innovation is in your discipline or program

The use of physical computing is fairly new to computer graphics design. While students are interested in the area, they don’t have all the skills necessary to implement many of the projects they envision. A project of this complexity is not possible with the usual skills of the designer. For engineering students modeling the mechanisms to replicate a living being has a high degree of complexity. Designers and engineers often work together in industry. Many potentials exist for establishing collaborative projects between these two groups of faculty and students. Marla Schweppe has created simple animatronics for Ringling Brothers and other similar projects with limited complexity. Paul Stiebitz oversees the multidisciplinary engineering senior projects. They collaborated on a project for the Red Cross using animatronics.

8. Provide a timetable of the development of the project.

The multidisciplinary engineering projects take place during the senior year for engineers. Students work on the projects either in fall and winter or winter and spring. Design students will have to design the character prior to fall quarter (either this spring or just before fall quarter begins), so that the designs are available to be included in the pool of projects for engineering students to select from in the fall and winter quarters. The first quarter of the engineering project is generally planning and design of the project with implementation being completed in the second quarter. The design students will work around the engineering schedule so that the whole project is completed at the end of winter or spring quarter. The performance and presentation will be scheduled when the project is complete.
1. Using attached form, complete a detailed budget for the project. Signatures of appropriate budget officers need to be included. Department Head signature is required for single department projects. **College Dean signature is REQUIRED for interdepartmental (Adaptation and Implementation Program) projects.**

The budget is attached.
1. If co-funders are involved, attach statement(s) of support.

Not applicable.

2. Letters of support from appropriate administrators are to be included.

Letters from Frank Cost for Joan Stone, Dean of CIAS and from Harvey Palmer are attached.

Please Note:

No hand written proposals will be accepted.

Absolutely no proposals will be accepted after 4:30 p.m. on Monday, March 13, 2006. Hand-deliver the grant proposal (4 pages maximum, plus attachments) plus 10 copies to Susan DeWoody, 1530 Wallace (Bldg. 5). Also, email your full proposal and budget to her at skdetc@rit.edu. NOTE: PLEASE DO NOT USE YOUR OWN FORMAT, BUT CONFORM TO THE ABOVE FORMAT. Thank you!

Proposals and final reports will be posted on the web.