Primary Criteria

The proposal involves the use of educational/instructional technology.

The proposal is innovative.

The proposal significantly impacts classroom education/instruction.

Students participate in project development.

The proposal enhances the visibility of the Department and/or FL Tech?

The proposal is clear and well written. (i.e., clear goals and objectives, appropriate budget justification)

The proposal is interdisciplinary.

The project budget is reasonable and appropriate for the scope of the project.

Secondary Criteria

The investigator has demonstrated that he/she has used previous ACITC awards appropriately/effectively.

Applicant Contact Information

Christian Sonnenberg
927BB, 239
+1 (321) 674-7169
csonnenb@fit.edu

Technology Integration and Decision Analysis for Management Information Systems

Submitted March 6, 2015 at 3:34 pm

Application

Application Type: Educational

Funded: No

Prior ACITC Funding?: No

Description

The goal of this project is to develop technology-based labs and instructional materials for BUS 3504 Management Information Systems and enhance existing tools in BUS 1501/1502 Foundations in Creativity, Innovation, and Entrepreneurship. Last year we began an initiative to educate business students in technology through the use of hands-on prototyping and programming. As an engineering-focused university, we feel it is necessary to give our business students an edge in the marketplace by advancing their understanding of how technology affects business. To this end we started the Raspberry Pi initiative, which incorporates the Raspberry Pi, a cheap, portable micro-computer, directly into the business freshmen curriculum. Students taking BUS 1501 and 1502 are introduced to the Pi and work in teams to develop software applications and prototype potential business products with Raspberry Pi components.

Our long term goal is to incorporate technology and the Raspberry Pi across the entire four year curriculum. Our next step is to provide students with a more advanced instructional experience that builds off the concepts laid out in the freshmen foundation courses. BUS 3504 Management Information Systems is our sophomore level course aimed at technology management, analytics, and enterprise-level decision making. The Raspberry Pi presents an opportunity to discuss pertinent topics, such as the "Internet of Things", how unique digital objects interconnect and exchange data to provide automation and improvements to the business environment. The Raspberry Pi can simulate such a network, but it requires the addition of sensors, devices, and hardware to collect and transfer this data.
The SunFounder sensor kit is a powerful collection of sensor modules and electronic components that can be integrated with a Raspberry Pi to collect environmental information such as motion, voice, pressure, temperature, and light among others. In a business environment, such sensors might be used to catalog information on the purchasing habits of shoppers or the workflow of an automated manufacturing plant. In the BUS 3504 course, students will work in teams in a simulated business to collect data from one aspect of the environment and then as a class to optimize and improve performance based on their findings. Students will be exposed to introductory programming concepts and create applications in the Python language to access and display sensor data. Students would then make decisions based on data and present a final business process improvement proposal.

Summary of benefits

1. Hands-on access to technology management tools for students
2. Students see data and information generated live from the business environment
3. Allows the creation and application of business decisions based on real world analysis
4. Provide business students with programming skills, which can strengthen their resume and make them marketable in the workplace.

Student Participation in Project:
Estimated individual student work: 18 hours initial in-class lab time, 20-40 hours of team-based project work.
Total number of students: 4 sections of BUS 3504, 120 students estimated.

Interdisciplinary Features:
This project also indirectly benefits the College of Aeronautics majors who also go through BUS 3504.

**Itemized Expenses**

<table>
<thead>
<tr>
<th>Category</th>
<th>Amount</th>
<th>Detailed Description Of Expense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hardware Purchases</td>
<td>$928.00</td>
<td>SunFounder Sensor Module Kits ($78 x 6) - $468 - Amazon.com Raspberry Pi 2 units ($70 x 6) $420 - Amazon.com LCD 480x320 RGB Pixels Touch Screen Display Monitor For Raspberry Pi for Model B ($40x1) - Amazon.com Total $928</td>
</tr>
<tr>
<td>Software Purchases</td>
<td>$0.00</td>
<td>No Software fees</td>
</tr>
<tr>
<td>Student Stipends</td>
<td>$0.00</td>
<td>No Student fees</td>
</tr>
<tr>
<td>Misc</td>
<td>$0.00</td>
<td>No Misc. fees</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$928.00</td>
<td></td>
</tr>
</tbody>
</table>

**Budget Justification**

This proposed project is unfunded. The BUS 3504 Technology Integration project requires hardware and sensors to be provided to teams to test and develop software applications to interpret environmental data and perform real-time analysis. Six teams will be provided with a SunFounder sensor kit along with a Raspberry Pi 2 unit to work with for the duration of the semester. In addition, one team will be provided an LCD touch screen display to act as a command module for the combined teams. The Raspberry Pi hardware is developed by the Raspberry Pi non-profit foundation and is sold at cost. The output of this proposal would be a hands-on project that fosters technology appreciation and strengthens student resumes.