

UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

Enhancing Mixed Reality Equipment at CMIX

Title

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Name of Submitter

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Organization

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ABSTRACT (250 words or less):

Mixed reality such as virtual reality and augmented reality technologies are changing the service delivery landscape in medicine, education, retail stores and gaming industries and, hence career opportunities in areas such as mixed reality are booming. As technology advances and technology applications more ubiquitous, School of Computing and Informatics (CMIX) seeks to forge ahead and provide the tools, opportunities, and training for its students so they can enhance their learning experiences and continue to be successful in life after graduation. The purpose of this grant proposal is to buy equipment to achieve unmet needs of students who are interested in innovating Virtual Reality and Augmented Reality based solutions using new tools available in the market. Specifically, we request two headsets: one for developing augmented reality application and another for developing virtual reality applications. If funded, this equipment will allow students to develop skills and experience using state-of-the-art technologies, making them more competitive in the job market, and will help CMIX to continue attracting more students in its program.

1. Purpose of grant

The purpose of this proposal is to purchase equipment for two projects that are expected to involve 10-15 graduate and undergraduate students. The first project requires purchase of a desktop workstation and a virtual reality headset with eye tracking capability. Although CMIX has a virtual reality lab, the existing equipment are not able to perform tracking of eye movements and capturing of physiological metrics. This prevents students from conducting more sophisticated experiments, e.g., those that involve understanding the impact of virtual reality environments on humans. With a headset containing eye tracking capability and smartwatches capable of capturing various health metrics, it will be possible to fill this gap.

The second project involves purchase of Microsoft HoloLens 2 Development Edition headset to facilitate the development of augmented reality environments. At this stage, students can only create augmented reality environments for smartphones and miss out on the experience of using more sophisticated development platforms. With HoloLens 2, students will have access to the state-of-the-art augmented reality development environment and equipment.

2. Impact to student body as a whole

The equipment purchased through the STEP funding will support and boost undergraduate and graduate work in health informatics and digital humanities areas. Currently, there is ongoing collaboration with the Department of History and Visual Arts on a digital humanities project and with the Department of Psychology in the University of North Carolina Wilmington on a health informatics project. About 10-15 students from Visual Arts, CMIX and History Departments combined are expected to be involved in these projects every semester for at least next two years. Moreover, in the future, for as long as the equipment is functional, students will be able to use them for their capstone, research, and class projects. The students will be able to develop skills that will help them become more competitive in the job market. The projects created by students because of using this equipment will be placed on display that will help CMIX attract other students to the department on an ongoing basis.

3. Projected lifetime of enhancement

The initial lifetime of the purchased equipment is at least 5 years. After that period, we can possibly upgrade components in the computers and make them usable for another 3-5 years (total 8 to 10 years, e.g., with upgraded graphics cards). The virtual reality headset and tracking hardware would last at least five years.

Person(s) responsible for

a. Implementation

Implementation will be carried out with the help of the program technical operations director (Dr. Robert Minvielle), Dr. Beenish Chaudhry and her graduate students.

b. Installation

Installation will be carried out with the help of the program technical operations director (Dr. Robert Minvielle), Dr. Beenish Chaudhry and her graduate students.

c. Maintenance

Maintenance will be carried out with the help of the program technical operations director (Dr. Robert Minvielle), Dr. Beenish Chaudhry and her graduate students.

d. Operation

Operations will be carried out with the help of the program technical operations director (Dr. Robert Minvielle), Dr. Beenish Chaudhry and her graduate students.

e. Training (with qualifications)

Dr. Beenish Chaudhry and her graduate students will create training material to make it easier for students to use the equipment being purchased.

Purpose and Justification

The requested funds will allow School of Informatics and Computing to purchase two different types of headsets for virtual reality and augmented reality applications that will be used by undergraduate and graduate students, primarily for class projects and additionally for capstone and research projects that have ranged from health to education to gaming in the past. With this equipment, the School of Computing and Informatics will be able to provide its students with valuable experience in the rapidly growing field of user experience design and health informatics with emerging technology. And, in the future, this equipment will also open the possibility of offering other related courses, e.g., emerging technology project in health informatics.

Budget Proposal

1. Equipment \$8,600

HTC Vive Pro Eye	\$1,600
Headset Accessories	\$500
Microsoft HoloLens 2 Development Edition	\$3,500
Fitbit Sense Advanced Smartwatch x2	\$1,000
Desktop Computer	\$1,200
Monitor	\$800

2. Software \$

3. Supplies \$

4. Maintenance \$

5. Personnel \$

6. Other \$

TOTAL: \$

Previously Funded STEP projects

None