UNIVERSITY OF LOUISIANA AT LAFAYETTE

STEP Committee

Technology Fee Application

Equipment for the Video Game Design and Development (VGDD) Lab
Title

Dr. Arun K. Kulshreshth
Name of Submitters

Computer Science, School of Computing and informatics
Organization

Title: Equipment for the Video Game Design and Development (VGDD) Lab **Date:** 01/15/2020

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ABSTRACT:

Video game design and development is a prominent area and a very popular concentration choice for the computer science undergraduate students. Due to recent advancements in graphics and virtual reality technology, there are so many job opportunities available for the students in this area. The Video Game Design and Development (VGDD) laboratory is the main laboratory used by our undergraduate students in the video game design concentration. Due to recent increase in enrollment in our program, the number of computers (currently 25) in this lab are not enough to support the video game design and related classes. This negatively effects related classes in this area. This laboratory is utilized every semester by both undergraduate and graduate students who take video game design courses, Virtual reality course, computer graphics course, and students/researchers who need high performance machines for their projects/research work. This request is for funding to enable the acquisition of equipment to enhance this lab, specifically adding more computers to support increase in class size (about 35 students and keeps growing every year). If funded, these enhancements will allow students to develop both knowledge and experience, making them more competitive in the job market, and will help us to continue attracting more students in our program.

Proposal Description

A) Purpose of grant and impact to the student body as a whole

Becoming a computer scientist and working software developer requires computer science majors to work toward developing their knowledge, skills and experience. The purpose of this grant is to assist these students in their development by enhancing the Video Game Design and Development (VGDD) laboratories in the School of Computing and Informatics. The enrollment in computer science program is growing every year making classes larger every semester. Currently, we have 25 machines in this lab and during Fall 2019 the games design class (CMPS 327) had 35 students. This forced some students to use their own laptops which negatively effects their learning since most laptops do not have a good graphics card for game development. Thus, we are proposing to add more computers to this lab to support a larger class. This laboratory is utilized every semester by both undergraduate and graduate students who take video game design courses (CMPS 327, CMPS 427, and CSCE 538), Virtual Reality course (CMPS 499, CSCE 598, CSCE 615), computer graphics courses (CMPS 415, CSCE 515), and students/researchers who need high performance machines for their projects/research work. In addition, this lab also serves as a major recruiting hub on preview days for high school students. Furthermore, this lab is also utilized during the annual Science Olympiad for the Game-On event which is a game design competition for the high school students. The equipment that will be purchased through the STEP funding will support and boost undergraduate and graduate work in the area of video game design.

Impact to the student body

Based on the provided justification, we expect the following impacts on the student body:

- Improving computer science student's abilities and expertise in the area of video game design, and computer graphics. This grant will also support increased enrollment in classes related to this area.

- Enhancing student skills by avoiding time to deal with slow outdated computers. Some students complain that their laptop is more powerful than these old computers.

- Enabling the Computer Science program to enrich current concentrations (e.g. video game) by allowing new possible projects (utilizing this new equipment) for students. This will attract more students to the Computer Science and will increase the number of enrollments in the program.

- Enabling students in other departments and schools, such as department of engineering, math and physics to gain access to computing resources.

B) Projected lifetime of enhancement

We believe that the computers purchased can work perfectly for at least 5 years. After that period, we can possibly upgrade the components in the computer and make it usable for another 3-5 years (total 8 to 10 years).

C) Person(s) responsible for

a. Implementation

Implementation will be carried out with the help of the Computer Science program system administrator (Mr. Frank Ducrest), Dr. Arun K. Kulshreshth, and their undergraduate and graduate students.

b. Installation

Installation will be carried out with the help of the Computer Science program system administrator (Mr. Frank Ducrest), Dr. Arun K. Kulshreshth, and their undergraduate and graduate students.

c. Maintenance

Maintenance will be carried out with the help of the Computer Science program system administrator (Mr. Frank Ducrest), Dr. Arun K. Kulshreshth, and their undergraduate and graduate students.

d. Operation

Operation will be carried out with the help of the Computer Science program system administrator (Mr. Frank Ducrest), Dr. Arun K. Kulshreshth, and their research lab students which includes both undergraduate as well as graduate students.

e. Training (with qualifications)

Dr. Arun K. Kulshreshth, and their research team members that will include undergraduate and graduate students. Also, a general training document will be prepared to teach others on how to access and work with the system.

D) Grant proposal and justification

Our intention in requesting funding to purchase 10 computers is to equip VGDD laboratory with latest technology by adding more machines to support larger classes (about 35 students). We do have some physical space (might require some re-arranging of existing equipment) in the lab to add these additional machines. This equipment would be utilized by undergraduate and graduate students, both as part of projects and in working with researchers in the School of Computing and Informatics to gain experience with applications in several broad areas including human-computer interaction, virtual reality and computer graphics. If funded, this grant request will allow students in the School of Computing and Informatics to gain valuable experience directly related to success after graduation.

Budget Proposal

1.	**Equipment**	**$25,000**
	10 powerful computers (with 27” monitor) with high end CPU and Graphics	Total: $25,000.00
2.	**Software**	**$0.00**
3.	**Supplies**	**$0.00**
4.	**Maintenance**	**$0.00**
5.	**Personnel**	**$0.00**
6.	**Other**	**$0.00**
TOTAL:		**$25,000**

Previously funded STEP projects:

$21,150 STEP Grant (Fall 2018 Cycle) Dr. Christoph Borst and Dr. Arun Kulshreshth. Equipment for the CACS Virtual Reality (VR) Lab. Several VR capable machines, VR displays, and related accessories were purchased with support from this STEP Grant.

$9,500 STEP Grant (Spring 2018 Cycle) **Dr. Arun Kulshreshth** and Dr. Ashok Kumar. Equipment for the Video Game Design and Development (VGDD) Lab. Two projectors, one computer and several wireless game controllers were purchased with support from this STEP grant.