Title: Music Postproduction System Date: July 5, 2009

Name (Contact Person): Robert Willey

Address: School of Music

Phone Number: 482-5204 Email: willey@louisiana.edu

Department/College/Org: School of Music

ABSTRACT:

The School of Music's Recording studio is located in Angelle Hall's room 158, which is also used for more than 26 hours a week for classes and ensemble rehearsals, cutting into the time students can work on homework assignments and projects of individual interest. This has made it difficult for students to do well in the recording classes, and to gain the additional experience they need in order to become recording engineers.

This bottleneck will be alleviated by creating a new postproduction mixing system in room 222 that is compatible with the recording system in the Recording Studio. Since the new facility will be a dedicated open access lab, students will have a lot more time to mix projects, freeing up the Recording Studio for students who need to work with live musicians.

The Recording Studio has bad acoustics, and suffers from noise from the School of Music's air conditioning system. An isolation booth will make it possible to record a musician without the effects of the room's noise and echoes.

Description of Proposal

a. Purpose of grant and impact to student body as a whole

The demand by students for access to the Recording Studio's Pro Tools system greatly exceeds the number of available hours. Room 158, where the Recording Studio is located, is also known as the "Orchestra Room" and is used by music classes and ensemble rehearsals 26 or more hours per week (*see attached schedule on p. 7*). In addition, the room is used for other special events such as high school honor bands and choir events which tie up the space for days, or opera rehearsals for weeks at a time. The two recording techniques classes (required of all Music Media majors and chosen as an elective by others) take place there, and the twenty students in the class are required to use the studio between classes for homework assignments. Students find it difficult to use open blocks of time to do their work due to time conflicts with their other classes, making it difficult to pass the courses. Students who have jobs find it even more difficult. Many homework assignments do not require the main recording room, and could be done entirely in a new Postproduction Studio during the times that the room where the Recording Studio is being used for other purposes.

In addition to the basic homework requirements, Music Media students are urged to do as many extra projects as possible in order to get additional experience. If they are going to work in the field after they graduate they have to develop their skills and portfolio, which can be done by recording their own or colleagues' bands. This is presently very hard for them to arrange, and has led to some bad feelings between students as one band squeezes out another for time.

Music production is usually done in two main phases: "tracking" and "mixing". During the tracking the instruments are recorded and mistakes fixed. The mixing phase, where these performances are edited, refined, and blended together very often takes more time than the tracking does. Both tracking and mixing presently take place in room 158's control room, a small booth built into one side of the room (*see attached diagram*). It is a cramped and odd shaped space, making it difficult to make accurate decisions during the mixing process. While mixing is being done the large capacity main room sits idle, with other students waiting their turn to track. This grant would allow students to track in the Recording Studio and then carry their hard drive to the Postproduction Studio to mix.

A second issue which affects the quality of work done in the Recording Studio results from its common wall with the main air conditioning system for the School of Music. Rumble noise comes through the wall and foundation, and hissing through the air ducts whenever the heating or cooling system turns on. Students recording acoustic instruments have to interrupt sessions every few minutes and wait for the system to shut off before continuing, which breaks the flow and wastes time. The recording room is a large cinder block-walled rehearsal space and has poor acoustics due to a noticeable flutter echo. This grant will provide an isolation booth to allow a musician to be recorded without the echoes and ventilation noise of the main room. Booths are standard features of professional facilities to separate the sound of one musician from others, and the ability to set a headphone mix and communicate with a musician in an isolation room is a necessary skill for future engineers to learn.

The Recording Studio in room 158 is also known as the Orchestra Room, and is used for the storage of band equipment. Students are not allowed to have keys to the door and have trouble getting in outside of business hours. The Postproduction Studio, on the other hand, will be a dedicated open lab with a keypad door lock, providing access

throughout the day, nights and weekends, and will not be used for classes. Making the Postproduction Studio compatible with the Recording Studio will therefore more than triple the number of studio hours available to students to learn audio production.

The Postproduction Studio will also be used to mix concerts recorded in Angelle Hall's auditorium, which presently has to be done in the Recording Studio, taking time away from students just when they need to be completing final projects. The recordings of larger concerts, such as the jazz big band, orchestra, and wind ensemble end of the year concerts often come within a short period of time, making it hard to mix the projects and get the recordings to the ensemble directors to be shared with the students before the semester's end. Mixes that can be made before the groups dissolve can be used to give the ensembles feedback on how they sounded, which is an important part of the learning process, and increase student satisfaction by providing a product to share with friends and family, and to use in portfolios. Due to the current bottleneck, mixes are often not finished until the next semester, at which point they are not nearly as useful. The activity of the Recording Studio benefits all music students, as they are often involved in solos, small groups, and ensembles that are recorded there, and use it to make recordings for their portfolios and applications for camps and graduate study.

As the two rooms will be compatible, students will be able to record their homework and other projects in the Recording Studio on hard drives, which can then be easily carried upstairs and mixed. Room 222, where the Postproduction Studio has been acoustically treated, making it a much better listening space than the control room in the Recording Studio. This will make it possible for students to make more accurate decisions when mixing, resulting in better quality work.

Increasing the amount of recording and mixing time will benefit all music students, as they will have more opportunities to be recorded individually and in groups.

b. Projected lifetime of enhancement

10 years

c. Responsible Person(s)

i. Implementation

Dr. Willey and graduate student assistants will implement the grant.

ii. Installation

Dr. Willey will install the equipment.

iii. Maintenance

Dr. Willey and graduate assistants will maintain the equipment.

iv. Operation

Students in the classes will operate the equipment and software.

v. Training (with qualifications)

Dr. Willey is the teacher of the recording and postproduction classes and is expert in audio production, facility design and maintenance.

d. Detailed description of each budget category

Hardware:

Digidesign HD3 Core System – a core card plus two expansion cards take the processing load off the CPU, allowing the student to record and process more audio tracks simultaneously. The Pro Tools HD software is included in this package.

Digidesign Command 8 – control surface for Pro Tools with 8 motorized faders and rings, MIDI in/out, and monitor section. The student operates the control surface to interact with the Pro Tools Software.

Digidesign 192 i/o – 8 channel audio interface, allowing the output of Pro Tools to be routed to the Postproduction Room's existing surround sound speaker system.

DigiSnake – Connect the 192 i/o to the speakers

We will use an existing Apple G5 in the Postproduction studio, and will upgrade with a hard drive in order to provide audio file storage space to mix recordings made in Angelle Hall auditorium.

In order to facilitate swapping of firewire drives between studios, two firewire enclosures will be installed (allowing students to save money by using drives without enclosures) and two firewire pci express cards (to allow more drives to be connected and protect the computer's ports from being accidentally fried when plugging in).

Audio cables – connect the whisper room to the Recording Studio's control room, interconnect patch bay. We will simultaneously run microphone cables to the adjoining Choir Room in order to use it as another recording space.

Whisper Room – 4'x4' isolation booth with ventilation kit noise suppressor and acoustic foam kit options. This will be located in the Recording Studio, allowing students to learn how to work with musicians in the booth and main room simultaneously, and to record a single musician isolated from the poor acoustics and air conditioner noise of the main room.

Software:

This software will make the Postproduction Studio compatible with what the Recording Studio has.

Waves Platinum TDM plugin bundle – plugins add audio effects, and these and the Altiverb below are the ones used in the Recording Studio. In order to be able to move projects back and forth between rooms without interruptions the plugin set needs to be the same. The Waves Platinum bundle has a wide variety of compressors, reverb, eq, echo, de-esser, and mastering tools.

Altiverb reverb plugin – a specialized plugin for simulating acoustic reverberation, modeled after different sized spaces and known concert halls.

Budget Proposal

Length of Implementation (in years) 1 (in years)	2	3
1. Equipment	$ 21,761	
2. Software	$ 2,850	
3. Supplies		
4. Maintenance		
5. Personnel		
TOTAL:	$ 24,611	

See attached spreadsheet for budget details.

The School of Music will contribute an existing computer, surround sound monitoring system, MIDI keyboard controller, television monitor, DVD player, and acoustic treatment to construct the new facility.

Timeline

Fall 2009, purchase and install equipment, begin to use in MUS376 and MUS422.

Spring 2010. Incorporate new facilities into MUS377.

Spring 2010. Incorporate new facilities into MUS376 and MUS422.

Additional Information

See attached schedule of fall classes and rehearsals conflicting with recording activities in room 158, and diagram showing the recording space and control room, with adjoining AC system.

Previous STEP Grants

“Performing and Live Recording System”, 1/09, $5,185.

"Recording Studio Upgrade: Developing System Input and Output", 7/08, $11.881, provided array of microphones to increase the number of tracks that can be recorded, and to experience how microphone selection and matching with preamp affect the sound.

"CD Recording System for Angelle Hall", 1/08, $1,350. Stereo recording setup for auditorium.

"School of Music Resource Center Upgrade", 7/07, $21,638.

"School of Music Pro Tools Recording System", 7/06, major renovation of recording studio facility creating professional 24-track digital audio recording system, $41,338. Created Pro Tools HD recording system, which will be compatible with the proposed system in the current grant proposal.

"School of Music Resource Center Upgrade", 7/06, software to create web sites, piano instruction, software, wireless connectivity, administration software, ethernet cabling, Reason synthesis software, $4,657.

"School of Music Resource Center Upgrade", 1/06, upgrade software and hardware, $6,055.

"School of Music Resource Center Upgrade", 7/05, upgrade software and hardware, $4,055

“Resource Center Upgrade”, 1/04, upgrade workstations, server, video transfer, and DVD authoring, $4,902.

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This table shows the reserved class and rehearsal times for room 158, which is known as both the “Orchestra Room” and “Recording Studio”, during the fall semester. There are 20 students in the recording class, and each need at least 2 hours a week to do assignments. Many students would like to use the studio to Recording Studio for their own projects in addition to homework, and if they plan on careers in audio production need to do so, in order to become proficient at recording, and to build up their portfolios.