STEP Committee
Technology Fee Application

Pro Tools HD Mixing System

Robert Willey

School of Music

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Signature of Gordon Brooks, Dean
College of the Arts

Title: Pro Tools HD Mixing System   Date: January 28, 2009

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ABSTRACT:

Two previous STEP grants have supported the development of a high quality Pro Tools TDM system in the School of Music's Recording Studio. The popularity of the production resources among students for doing class and individual projects has quickly exceeded the number of available hours, since the recordings take place in room 158, which is used 26 hours a week for other classes and ensemble rehearsals.

This proposal will alleviate the bottleneck by upgrading the School of Music's Postproduction Studio, from its present Pro Tools LE (Limited Edition) system to Pro Tools TDM (the professional platform) in order to make it compatible with the TDM system in the Recording Studio. As a result, students will have more time to mix projects in the open access Postproduction Studio, 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, which is located in the adjoining room. An isolation booth is proposed to make it possible to record a musician separated from the effect of the room's echoes and air conditioning noise.

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 TDM system has exceeded the number of available hours. Room 158, where the Recording Studio is located, is used by other classes and ensembles 26 hours per week (*see attached schedule*). In addition, there are other special events such as high school honor band and choir events which tie up the space for days at a time. The two recording techniques classes (required of all Music Media majors and chosen as an elective by others) meet there, and the seventeen students in the class are required to produce recordings during the week. Students find it difficult to find open blocks of time to do their work due to time conflicts with their other classes, making it difficult to pass the courses, which are required of media majors. Students who work find it even more difficult to complete projects. Students who work find it even more difficult. Music Media students are advised to do as many extra projects as possible in order to get needed experience to develop their portfolio and skills, such as by recording their own or friends' bands. This is presently very hard for them to do.

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 combined together very often takes more time than the actual recording does. Both recording and mixing presently take place in room 158's control room, a small booth built into the room (*see attached diagram*). It is cramped and odd shaped, making it difficult to make accurate decisions during the mixing process. During the mixing phase no more tracking can take place, and the large capacity recording space sits empty, while other students wait their turn. Students can not work in the control room while classes are meeting due to the poor acoustic isolation from the recording space, where classes meet 26 hours week.

A second issue which affects the quality of work done in the Recording Studio results from its location next to the air conditioning system for the School of Music. Rumble noise comes through the walls and foundation and hissing through the air ducts whenever the heating or cooling system turns on. Students often have to stop every few minutes and wait for the system to shut off before continuing with recording sessions, breaking the flow and wasting time. This is especially apparent with smaller groups of musicians. The room is a large brick-walled rehearsal space and has poor acoustics for recording, including a noticeable flutter echo. This grant includes an isolation booth to allow a musician (i.e. singer or solo instrument) to be recorded without the echos of the room and ventilation noise. Booths are standard features in professional facilities to isolate one musician from others in an ensemble, and the setting up of musicians in multiple rooms with mixes set up in headphones is a necessary skill for future engineers.

The Recording Studio in room 158 is also known as the Orchestra Room, and is also 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, is an open lab with a keypad door lock providing 7/24 access including nights and weekends, and is not 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.

The new mixing facility in the Postproduction Studio will also be used to mix multi-track concerts recorded in Angelle Hall's auditorium, which presently have to also be mixed in the Recording Studio, taking time away from student access hours. The multi-track hard

disk recorded in Angelle Hall's auditorium is used for larger concerts, such as the jazz big band, orchestra, and wind ensemble. The groups' end of the year concerts often come back-to-back, making it hard to mix the projects and get the recordings to the ensemble directors so that they can share them with the students before the semesters end. If the mixes can be made before the groups dissolve they can be used to give the ensembles feedback on how they sounded, an important part of the learning process, and to have a product they can share with friends and family, and use in their portfolios. Due to the current bottleneck, mixes are often not finished until the beginning of the next semester, at which point they are not nearly as useful.

Once the two facilities are made compatible, student will be able to record their homework and other projects in the Recording Studio on firewire hard drives, which can then be easily carried upstairs and mixed. The Postproduction Studio has better room dimensions than the control room of the Recording Studio, and 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. We will use its existing speakers and upgrade its computer instead of buying new equipment in order to save money.

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.

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 the existing Apple G5 in the Postproduction studio, and will upgrade with:

> Firewire hard drive – audio file storage space to mix recordings made in Angelle Hall auditorium.

> 2 GB memory kit upgrade – improve CPU efficiency and resources

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:

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) (in years)	1	2	3
1. Equipment	$ 21,468		
2. Software	$ 2,850		
3. Supplies			
4. Maintenance			
5. Personnel			
TOTAL:	$ 24,328		

The School of Music will be dedicating its Postproduction Studio to this project, which already has a surround sound monitoring system, subwoofer, MIDI keyboard controller, and acoustic treatment.

Timeline

Spring 2009, purchase and install equipment.

Fall 2009. Use new facilities in MUS376 and MUS422.

Spring 2010. Use new facilities in MUS377.

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

"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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2	⬛	⬛	⬛	⬛	⬛
2:30	⬛	⬛	⬛	⬛	⬛
3	⬛	⬛	⬛	⬛	⬛
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5		⬛	⬛	⬛	
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8		⬛		⬛	
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9:00		⬛		⬛	

Room 158 reserved class times, Fall 2009. There are 17 students in the class and each need at least 2 hours a week to do assignments. Many students would also like to use the studio to record their own projects beyond homework, and should do so in order to become proficient at recording.