The goal of this project is to change the currently outdated KCSU analog radio station into a new and improved digital radio station. The new digital radio station will help improve the signal quality in order to provide the best listening experience to the KCSU campus and to stay competitive with other radio stations. Our first assumption was in learning and research, as well as the election of new components. The second semester saw the start. We spent this time researching on digital radio design, examining the most famous tuner and audio solutions provided by Omnia Labs and with the guidance of USC Professor Rogerio Lemos.

**Networked Audio System**

**Waferstone E-Squared**

A network-based audio-over-IP system designed specifically for radio studios. The flexibility allows E-Squared to become an all-in-one networked solution for the near future. The first thing that comes to mind is that it has a great system of redundancy and allows for easy expansion. The system is easy to use and the software provided is user-friendly and robust.

**Microphones**

**Electro Voice RE20s**

A large diaphragm broadcast microphone with a rugged shockmount designed for broadcast use. The RE20 has been used successfully with microphones in the FM radio industry. It is a very high-quality microphone and is ideal for use in any professional application.

**Distribution Amplifier**

**Apex XA90**

This unit takes a single-source-balanced audio input and distributes several copies of the input signal. The unit is designed to be used in places where multiple copies of the same signal are needed. The Apex XA90 is a versatile piece of equipment that can be used in a variety of applications.

**FM Modulation System**

**Inovonics Model 352**

This unit is used to modulate the incoming signal from the transmitter. The unit is small and easy to use, making it ideal for use in any studio environment.

**CD Players**

**Denon DN-993**

These provide fast search functions, play with excellent sound quality, and are easy to use. They also offer additional functions such as CD text display, track information, and a built-in AC/DC power supply.

**Audio Editing Software**

**Adobe Audition 3.0**

This software provides the tools for the radio station to produce high-quality audio files. It allows for precise editing, mixing, and mastering of audio files.

**Phone Hybrid**

**Comrex DHE30**

This is a digital hybrid phone interface that allows for telephone calls to be made and received in a professional manner. It provides clear audio and the ability to hear the caller's voice back through the phone.

**RDS System**

**Inovonics Model 790**

This is an RDS device that allows for the broadcast of traffic and weather information. It includes features such as alarm, listening mode, and time offset. The RDS 790 is ideal for use in radio stations and is compatible with all major RDS systems.

**Conclusion**

The project was successfully completed and the new digital radio station is now operational. The team learned a lot throughout the process, and the final product is a testament to their hard work and dedication. The station now provides a superior listening experience to the listeners and will continue to grow in the future.