KCSU Future Expansions as of May 3, 2009

This semester we have developed a proposal to modernize the KCSU’s studios. There are two projects that could potentially be left for future senior design teams: antenna relocation and changing the transmitter to broadcast a digital signal.

Currently, KCSU boasts a 10,000 watt transmitter. Certainly impressive, but most of that power is only necessary to counteract the relatively poor placement of the antenna. If the antenna were moved, perhaps up on the hills around Horsetooth Reservoir, the same area could be covered while consuming much less power. In fact, it has been estimated that this antenna relocation would reduce the necessary power consumption to only 1500 watts. Also, as the city of Fort Collins continues to grow and new buildings spring up, the direct ‘line of sight’ path for the microwave STL signal from the Lory Student Center to the transmitter site will become obstructed. This may make it difficult for the microwave signal to reach the antenna and maintain its fidelity. A future senior design team would need to look into the cost and the appropriate placement for the transmitter antenna.

The antenna currently resides on the CSU Foothills Campus. We assume that the ideal placement for the transmitter antenna relocation may not be on property owned by CSU, in which case, it would be unlikely that an antenna could be placed there. It is our assumption that the antenna relocation project will probably include lots of research in geography, discussion with landowners and city planners and not very much electrical engineering.

In the future, the ability for KCSU to actually broadcast a digital signal may be desired. Purchasing such a digital transmitter would depend on whether or not the consumer market is moving towards digital radio. Our experience indicates that this project of digitizing the transmitter would merely include some product research to determine the best new transmitter for KCSU to purchase, certainly an important undertaking since such a purchase would be very expensive, but not a very extensive senior design project.

It is therefore our opinion that there is not much ‘engineering’ left to do for digitizing KCSU, at least not enough to warrant another year-long project. Perhaps a future team of electrical engineering students could design a piece of equipment that would be incorporated into the station’s operation. Such a project would allow for much more creativity in engineering than simply researching the hills around Fort Collins looking for a good transmitter spot, or researching which digital transmitter would be best for KCSU to purchase.