Communication Electronics Presentation and Demonstration

Objective:

The purpose of this assignment is to allow you to investigate details related to communications electronics that interests you and share that information with your classmates through a presentation and demonstration. You will work in a team to research your chosen communications system and based on your research, predict how this system will change in the future. You will gauge its impact on society and present your findings so that your classmates may benefit from what you've learned. Finally, your team will create a technology-based demonstration related to your chosen system.

Background:

One of the best ways to learn about a subject is to work collaboratively and prepare to teach it to others. Preparing a technical presentation and demonstration that is successful in explaining a subject to others requires you to have a clear understanding of the subject. Your presentation must be illustrated with examples, figures, illustrations, results, simulations, and so forth. In preparing these details, you will develop a deeper understanding of the subject. As an added bonus, your presentation and demonstration may be used in open-house presentations to inform and excite prospective students and their families.

Detailed Description:

Your team will pick a communications system that you would like to know more about. You will research the system and learn how it operates, creating an informative PowerPoint presentation and laboratory demonstration. You will also record (video and audio) your presentation and demonstration as part of this assignment.

For your chosen system – Identify the current stakeholders and their needs and motivations. Answer the “who, what, when, where, why and how” questions citing credible references. For example – Who created the system? For what purpose? When was it created? Where was the first instance established? Why was it created? What was the need served? How was it created? Was new technology invented or was established technology repurposed? Include detailed information on how the system in its current form impacts society.

Describe signal generation, modulation techniques utilized, propagation models, and signal reception and demodulation techniques for your chosen system.

You will also answer the questions –Is the system serving the same purpose today as when it was created? How has it evolved? Have the stakeholders and/or their motivations changed?

You will predict how the chosen system will change in the future (over the next decade or so) and its future impact on society. Justify your prediction(s) using clear evidence and cite your credible sources.

Finally, each team will demonstrate at least one aspect of their chosen communication system. You must use the RTL-SDR, the lab equipment in ENT-3145 (including the spectrum analyzer), MATLAB, SIMULINK, multisim simulation software or some combination of the aforementioned for your demonstration.

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Overall your teamwork will culminate in approximately a 25 minute presentation and demonstration to be given during the week of 12/04/233 in ENT-3145 during your lab time. Plan on giving a 10-15 minute presentation, a 5-10 minute demonstration and 5 minutes for a Q&A session with your audience.

Your final PowerPoint slide-deck, demonstration hardware/simulation files and results as well as a video recording of your presentation and demonstration will be submitted as a record of your results and for grading purposes.

Milestones:

- ✓ **Initial proposal** (idea/scope, possible demonstration ideas) – M 09/18/23 11:59PM
    - Proposal approval/modification/suggestions – M 09/25/23 11:59PM
- ✓ **Presentation outline** (including planned demonstration) – M 10/02/23 11:59PM
    - Feedback/guidance (goals met, scope reasonable, reference sources) – W 10/11/23 11:59PM
- ✓ **1st draft presentation/demo** (video/instructor only) – M 11/06/23 11:59PM
    - Feedback(rubric)/guidance (Relevance, technical accuracy, soft skills) – M 11/13/23 11:59PM
- ✓ **Final presentation/demo** (in lab with an audience) – M 12/04/23 & W 12/06/23 at 12PM

Deliverables and Grading:

- ✓ 10% Initial proposal
- ✓ 15% Presentation outline
- ✓ 20% 1st draft presentation/demonstration
- ✓ 30% Final presentation (includes peer review)
- ✓ 25% Final demonstration (includes peer review