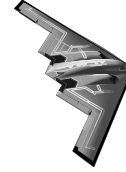


ECEN/MAE 3723 Systems I
Fall 2006
Oral Presentation
November 7, 2004



Team 1: Control in Future Entertainment

12:00pm-12:10pm

Forrest Austin, Melinda Hale, Justin Ward, Jeremy Wooten

Abstract

A presentation covering the future of entertainment is given here. Entertainment is what we all look forward to whether at the end of a long day or on a long awaited vacation. Our group will provide a sneak peek into the future of entertainment. Topics discussed will include video games, virtual reality, live entertainment, and special effects in movies.

Team 2: Control in Future Health Care

12:10pm-12:20pm

Justin Easley, Grant Heimbach, Osayamen Imade, Aaron Wiseman

Abstract

For our presentation, our group will briefly discuss the applications of systems in modern health care. In addition, we will discuss the former uses for system design in health care of the past half century. One topic covered will be an in-depth analysis of an example of the use of systems in a modern medical application. Also, some future prospects of system design in the cutting-edge medical technology will be discussed. We will give in depth examples with technical specifications covering the new technology of robotic surgery and tele-health care. The general layout of our project will cover the past, present, and future of the relationship between systems and health care.

Team 3: Engineering Thinking in Daily Life

12:20pm-12:30pm

Jerus Barnett, Tommy Bezinque, Dustin Gamble, Cody Pinkerman

Abstract

Throughout daily life, deductive reasoning and logical thinking can be used to minimize the number of actions performed or the amount resources used. Sometimes conscious decisions and efforts are made to reach this general goal. Many times, however subconscious decisions are made several times a day and even several times for a single task in order to minimize the amount of effort or materials consumed for a given task. Engineering thinking can be applied to every aspect of life no matter how simple or complex it may initially appear. Tasks as mundane as driving across town to something as expensive and complex as sensor and component design can be analyzed with the same basic logic and engineering principles.

Team 4: Control in Future Transportation

12:30pm-12:40pm

Andi Cabe, Toan Ly, Steven Welch, Cameron Zlotogura

Abstract

Controls are going to be needed in all forms of future transportation. On the land, a Maglev is a promising concept for the future. A Maglev is a train that uses "magnetic levitation" as its primary means of movement. Of course, this is going to require an extremely complex system of controls from starting and stopping to emergency when the electrical controls fail. Then, in the air, there are several new forms of commercial airplanes that are being developed. Of these, one of the more interesting projects is Boeing's Yellowstone project. Among the many new trends that Yellowstone is trying to lead Boeing is in its controls. To increase fuel efficiency, Boeing is trying to switch from mechanical controls to more electrical controls. For the future of airplanes, commercial space flight seems to be what is in store. Right now, it may be a leisure trip only for the richest of the rich but it promises to have the potential for a large-scale market. Controls play a huge part in this. They would be everywhere, from life-support to landing and take-off. Finally, in the extremely distant future, there is the possibility of interstellar travel. The technology is not even there yet. Controls would play an enormous part in it. Something would need to be there for controlling just the sheer amount of energy that is required by something of that nature. On top of that, starting and stopping would need to be done at enormous

distances away from the destination at extremely precise times. This could only be done by very precise and speedy controls.

Team 5: Control in Future Weapon Systems 12:40pm-12:50pm

Andrew Byrd, Tyler Deffenbaugh, Kelly Ennen, Nicolle Smith

Abstract

Unmanned Aerial Vehicles are an emerging technology in warfighting. Some of the benefits they provide include their ability to keep soldiers out of danger, low cost, and in some cases they outperform manned aerial vehicles. Since there are many complex systems involved in the vehicle, and no operator is directly monitoring them, the use of control systems is vital to their performance. Some of these systems include navigation systems, targeting and identification technology, and munitions and weapon guidance systems. By reducing the risk to soldier's lives, and as solutions to control problems are found, this type of technology is likely to be used much more frequently in the future.

Team 6: Control in Homeland Security 12:50pm-13:00pm

Richard Pratter, Branson Rhoads, David Silva-Salcido, Shawn Standfast

Abstract

In this presentation we will be discussing three of the different aspects of homeland security and the systems that may be used to control them. First to be discussed will be the operation and use of sensors to detect threats in cargo, passengers, and personnel involved in the transportation system entering and already within the United States. Secondly, we will discuss the use of control systems to model, and then contain a potential biological threat within any major US city. Lastly, the control systems and communications necessary for the possible implementation of a backup system for overriding onboard control of hijacked aircraft will be discussed.

Team 7: A Memorable Character in Control History 13:00pm-13:10pm

Thomas Christian, David McVay, Matthew Dickey, Matthew Legg

Abstract

For the Dynamic Systems fall semester project our team was given the topic of choosing a memorable character in control history. For this topic we chose to give our presentation on Lawrence Sperry, the inventor of the autopilot. In our presentation we will quickly cover Lawrence's life and what events and thought processes led him to produce the autopilot system. The autopilot system he created was revolutionary to pilots because it greatly reduced the workload and human error in flying an aircraft.

Team 8: Control in Future Sports 13:10pm-13:20pm

Seng-Yiu Chong, Andrew Collier, Kyung-Han Chung, Brian Huckabay

Abstract

In the day and age of High Tech gizmos and gadgets used for anything you can imagine, it is only time until technology has a trickle down effect and has an impact on sports. In Formula One racing series technology and control engineering plays a huge factor to the team's success. In Formula One the engine is the most complex part of the car. The systems that control the engine and allow it to produce in the neighborhood of 750 H.P. at 19000 rpm are just as complex and are ever evolving as teams look for a way to gain a competitive edge. Preparation for the sport that you play is a year round effort, with technology some athletes are preparing by using simulators. Can you imagine the day where practice is come in and strap into a simulator? While some athletes choose simulators to try to get an edge on the competition some may turn to some more taboo methods. Many rules and regulations in sports today deal with cheating prevention. Recently, several instances of cheating have called a lot of attention to sports. Steroids and doping agents have seemingly become more widely used in recent years, because these substances can give athletes unfair advantages. Several existing tests can confirm the presence of these substances after being sent to a lab, but in the future new methods of cheating may arise. To confront this inevitable uprising, new control systems must be put in place. Another area that control engineers may be able to effect sports deals with prosthetics. As our understanding of the human body increases the need for high tech prosthetics occur. Gone are the days of the wooden peg leg, and here are the days of prosthetic legs controlled by mechanical components and computers.

Team 9: Employment Opportunity for Control Engineers 13:20pm-13:30pm
Ek-Ching Ngwe, Justin Knight, Brian Potts, Chad Yost

Abstract

The basis of this presentation is to examine the various employment opportunities available to control engineers. Often graduates do not know the possible career options their degree offers, or even where to look to find companies hiring for their specific position. Available jobs for control engineers can be discovered by searching employment websites and hiring notices provided by companies on the internet. Employment opportunities for control engineers are vast and ever changing and can be found in almost virtually every field. New positions for control engineers are opening constantly as the world continues to grow technologically.

Team 10: Control in Future Space Exploration 3:30pm-3:40pm
Matthew Allen, Waleed Al-Rowdan, Alex Fleming, James Lewis, Omogbolahan Jabita

Abstract

As scientists think about the future of space exploration they are faced with many aspects to improve so that future space exploration can become more practical and safer. One of the most important improvements must be made with respect to the design of the space craft. Some of the plausible ideas that are will be researched over the next couple years include solar sails, ion engines, nuclear power, and even space elevators. While some of these are definitely more practical than other they all are looking like they could be part the next big research project and would all need innovative control solutions to work. Human beings reliance on resources for life creates another big problem as space exploration continues to extend further into space. The massive amount of resources such as oxygen, food, and water it would require for humans to explore further into space makes it a necessity to develop new technologies to effectively renew required resources. For example, oxygen can be created by a process called electrolysis, which uses electricity from solar panels to split water into hydrogen gas and oxygen gas. Most space exploration is well suited to unmanned missions rather than manned, due to lower cost and risk factors. For example, some planetary destinations are too hostile for human survival, or too distant to reach with current manned spaceflight technology, so unmanned exploration is the only way to reach them. Missions will take place great distances from Earth, making timely human interaction impossible and creating a need for controls to run every aspect of the real-time operation of the mission. As the private space industry continues to grow, competition will advance technology and reduce the cost of going to space.

Team 11: Promoting Women in Engineering 3:45pm-3:55pm
Karla Arellanes Mendoza, Stephen Nilson, Jennifer Ryan, Aquesha Williams

Abstract

“Women” and “Engineering” are two words that have rarely been seen close together, but the times are changing. Numerous reasons account for why it has taken so long for women to make head-way into engineering, which has been a male-dominated field since its inception. We will explain how past thinking has influenced the modern woman in her decision to pursue a career in engineering, and how the future will be shaped by the decisions she makes today. We will provide statistics which prove that women are becoming a viable powerhouse in engineering. We plan to outline the actions that organizations are currently taking to promote women in engineering. We will also give a brief history highlighting prestigious women that have made considerable contributions in the field of engineering. Many young women still think that it is nearly impossible to become a successful engineer, but we will dispel these words for the myths they really are by presenting concrete proof that women can be and are excellent engineers.

Team 12: Preserving Engineering Ethic Codes 4:00pm-4:10pm
Kelli Gosney, Jeffrey Bridges, Americo Fernandez, Corey Byars, Eniza Joel

Abstract

Since Control Engineers design and provide the equipment used by engineers of all aspects, it is essential that control engineers adhere to the code of ethics. Each field of engineering has defined their own set of ethic codes to be followed. As students in engineering, it is our responsibility to learn and uphold the ethics, and to challenge our peers to do the same. History has shown that lack of discipline, poor conformance to ethics, and lack of communication has led to disasters. Ethics exist for a reason, we will discuss the benefits and consequences.

Team 13: Future Sensor Technology

4:15pm-4:25pm

Jacob Burton, Daniel Doray, Russell Huddleston, Todd Susan

Abstract

Sensor technology has changed dramatically in the last 40 years. From simple mechanical switches to high precision microscopic optical communication. With this advancement life as we know it has been changes dramatically. Sensors in our own body allow us to give new mobility and control to amputees and paraplegics. Microscopic “Smart Dust” with completely self-contained allow for mass amounts of data to be collected in an instant. Automotive technology has been changed forever by new innovations in sensors, along with our ability to sense and predict highly complex weather patterns.

Presentation in 10 min with all team members involving in preparing & presenting the work

Group Meeting during the class on October 17, 2006

Email an abstract (1-paragraph) for handout materials (deadline: October 27, 2006)

Email the powerpoint file for presentation (deadline: November 2, 2006)

Judging criteria:

- Technical breadth and depth (30%)
- Relevance to the field of control engineering (20%)
- Clarity of the presentation (20%)
- Adherence to the time limit (10%)
- Entertaining (20%)