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CPE322
Homework #3

The first project that I am personally interested in is Gwenn Flores' Temperature Controlled Mug, with an interest rating of 5. Personally, I would be very interested in owning a product like that and could foresee its high marketable potential and high versatility. If I was to participate in this project, I can bring my overall knowledge in electronics and systems to assist in optimizing the design. I will also use my skill in management to organize the project and ensure progress, and will be willing to work on that project over the semester. My only concern over the concept is battery usage, and whether a good battery design can be made to let power supply be portable, lasting, and provides enough power to warm and cool the drinks - perhaps it is more efficient and doable to keep this warmer/cooler plugged in to wall adapter or USB. Marketing wise, my only other concern would be would this product be economic enough to compete with traditional mugs or other insulation methods.

My second project of interest with an interest score of 4 is Alexander Thieke's Self-Tuning Piano. Despite the extensive effort and probably high manufacturing cost, this product can save considerable effort in having to retune piano and will establish a well-received customer base in piano-users. My contribution to this project is also my knowledge in electronics and systems. I also have extensive knowledge in microprocessors if the design ends up requiring them, and will be willing to work on this project over the semester. My suggestion to this project would be to introduce the self-tuning device as a modification to piano rather than completely new piano. This will further open up the market to numerous owners that already own pianos, as they can be expensive to purchase again.

My third project of interest with an interest score of 3 is Kevin Barresi's Fault Tolerant Circuit. Any efforts that can revolutionize the efficiency of basic circuits and improve their longevity without requiring expensive material can have high marketable potential, given the extensive usage of FPGA devices around the world and their overall already high efficiency. If I was to participate in this project, I can bring my overall knowledge in electronics and systems to assist in optimizing the design. I will also use my skill in management to organize the project and ensure progress, and will be willing to work on that project over the semester. However, one problem that made me unsure about this project is its practicality – how much can this design improve lifespan of FPGA realistically, and how practical can this design affect circuits.

My fourth project of interest with an interest score of 2 is Michael Paulauski's Autonomous Drone Delivery. The use of small-scale unmanned aerial vehicles can possibly change the way transportations are done. If I was to participate in this project, I can bring my overall knowledge in electronics, programming, and system to this project. Additionally, I will also use my skill in management to organize the project and ensure progress. I am more reluctant to work on this project, however, given its fierce competition and high requirements. A suggestion I can bring to this project is based on concern of its high research and construction cost. This project can be further downsized into doable project with less competition.

The last project of interest that I have in mind with an interest score of 1 is Dillon Connolly's Audio Communication Helmet. This project can potentially provide alternative solutions to more expensive communication equipment if a right design is found. If I was to participate in this project, I can bring my overall knowledge in electronics and systems to assist in optimizing the design. I will also use my skill in management to organize the project and ensure progress, and will be willing to work on that project over the semester. My concern will

also be the marketability of this project, and how much are people willing to pay within reasonable range for a product that marginally impact an area of their lives.