CUSD Re-Innovations

Upson Hall Sensors

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Intelligent Occupancy Sensing for Heat Control in Academy Offices



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EXECUTIVE SUMMARY

The Upson Hall Sensors team focused mainly on improving upon last semester’s prototype design. In that prototype, we were able to predict with relatively good accuracy when a professor would be in their office ahead of time using a combination of RF sensors, motion sensors, Microsoft Outlook calendar interpretation, and machine learning such that we could heat their office to a desired temperature before their arrival. This system allows for a building to achieve significant efficiency improvements; often in the colder months of the year, we see professors leaving their heating systems on all the time, resulting in a large waste of energy and money.

By including new and improved sensors along with a user interface, we attempted to improve upon this existing design. As this project is still in its early phases, we found it valuable to revisit our initial project goal this semester and reiterate what exactly makes a good heating system. It was especially important to do so because our team was almost entirely comprised of new members; only one member of the team returned from last semester.

INTRODUCTION

During the course of this semester, the Upson Hall Sensors team researched and implemented new

Set up a context for your paper, what, if any research are you building off of, where was your project at the beginning of the semester? What is your paper going to be about and why does it matter? What should the audience do with your recommendations? Think about your stakeholders, They are the audience as much as Dave is. What will they want to know and What should they do with the information. I encourage you to make these into separate sections within your introduction if they get long, subsections within sections. Ensure that they are in an order that makes sense. Sed dignissim lacinia nunc. Curabitur tortor. Pellentesque nibh. Aenean quam. In scelerisque sem at dolor. Maecenas mattis. Sed convallis tristique sem. Proin ut ligula vel nunc egestas porttitor. Morbi lectus risus, iaculis vel, suscipit quis, luctus non, massa. Fusce ac turpis quis ligula lacinia aliquet. Mauris ipsum. Nulla metus metus, ullamcorper vel, tincidunt sed, euismod in, nibh. Quisque volutpat condimentum velit.

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Each section should have an introduction. The idea is that many different kinds of people can read different levels of our paper and still get something out of it. The first paragraph of each section should always summarize the entire section basically and succinctly with as little jargon as possible. Class aptent taciti sociosqu ad litora torquent per conubia nostra, per inceptos himenaeos. Nam nec ante. Sed lacinia, urna non tincidunt mattis, tortor neque adipiscing diam, a cursus ipsum ante quis turpis. Nulla facilisi. Ut fringilla. Suspendisse potenti. Nunc feugiat mi a tellus consequat imperdiet. Vestibulum sapien. Proin quam. Etiam ultrices. Suspendisse in justo eu magna luctus suscipit.

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Table 1

(make sure you indicate a figure number and cite at the end of your paper)

How to Include Graphics

Pretty graphics should be included as often as possible throughout the paper. If they require further explanation, feel free to expand upon them in the Appendix. If they are ugly, put them only in the appendix.

“If you have a very important quote or statement to call out, you can format it like this using Archer Light Italic”

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How to Include Lists and Subsubheadings

If you have a list that leads to sub sub sections you can do them like this:

1. Bullet or number the list
2. Use short phrases in Gotham Narrow Book
3. You can turn them into sub sub headings if you want.

1. Bullets or Numbers

Numbers should only be used in lists that require chronology, lists that only make sense in one order. If the order does not matter, bullets (simple round ones) are the way to go. Sed lectus. Integer euismod lacus luctus magna. Quisque cursus, metus vitae pharetra auctor, sem massa mattis sem, at interdum magna augue eget diam. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Morbi lacinia molestie dui. Praesent blandit dolor. Sed non quam. In vel mi sit amet augue congue elementum. Morbi in ipsum sit amet pede facilisis laoreet. Donec lacus nunc, viverra nec, blandit vel, egestas et, augue. Vestibulum tincidunt malesuada tellus. Ut ultrices ultrices enim. Curabitur sit amet mauris.

2. Use short phrases

Make them snappy and title worthy if they are each going to be expanded with their own paragraphs. If not, there are plenty of effective ways to make numbered/bulleted lists with complete sentences. Sed lectus. Integer euismod lacus luctus magna. Quisque cursus, metus vitae pharetra auctor, sem massa mattis sem, at interdum magna augue eget diam. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Morbi lacinia molestie dui. Praesent blandit dolor. Sed non quam. In vel mi sit amet augue congue elementum. Morbi in ipsum sit amet pede facilisis laoreet. Donec lacus nunc, viverra nec, blandit vel, egestas et, augue. Vestibulum tincidunt malesuada tellus. Ut ultrices ultrices enim. Curabitur sit amet mauris.

3. Turn them into sub sub headings

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Make it clear what you recommend. If something is optional, say so. Be sure to outline cost options and associated pros and cons. If this requires a chart to illustrate it effectively, make one. Prioritize and explain. If you team has a clear opinion on which way to go, make it clear. If there is more work to be done, recommend how to move forward.

Leaving Stuff for Posterity

Some teams have leaders and members that will not be returning. It is important to us that each team expresses a clear opinion about how to move forward with their given work. This includes where information is stored, what initiatives should be prioritized next and outlining a greater vision for the maximum potential of your team’s initiative. It will likely be the last section of your recommendations section, or in some cases it may deserve its own section. Morbi in dui quis est pulvinar ullamcorper. Nulla facilisi. Integer lacinia sollicitudin massa. Cras metus. Sed aliquet risus a tortor. Integer id quam. Morbi mi. Quisque nisl felis, venenatis tristique, dignissim in, ultrices sit amet, augue. Proin sodales libero eget ante. Nulla quam. Aenean laoreet. Vestibulum nisi lectus, commodo ac, facilisis ac, ultricies eu, pede. Ut orci risus, accumsan porttitor, cursus quis, aliquet eget, justo.

CONCLUSION

Re-emphasize overall conclusions, how to move forward with the research, how to apply findings to the project. Morbi in dui quis est pulvinar ullamcorper. Nulla facilisi. Integer lacinia sollicitudin massa. Cras metus. Sed aliquet risus a tortor. Integer id quam. Morbi mi. Quisque nisl felis, venenatis tristique, dignissim in, ultrices sit amet, augue. Proin sodales libero eget ante. Nulla quam. Aenean laoreet. Vestibulum nisi lectus, commodo ac, facilisis ac, ultricies eu, pede. Ut orci risus, accumsan porttitor, cursus quis, aliquet eget, justo.

WORKS CITED (if applicable)

Figure 1 – short description, only include graphs in works cited if not your own.

APA FORMAT CITATIONS

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APPENDIX

I. Include one item per page. Include ugly and text heavy items here, anything that seem too detailed, specific, or long to include in the body text. But does pertain to your research. You can reference appendix items in the body text (Appendix I). Describe the items up with the roman numeral and then insert the reference item below its description.