Matthew Lamoureux-Durr

Final Project 1 (Design)

Prof. Hussam Al-Hertani

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**H.A.L. – Home Automation Logic**

For my final project for the Electronics Technology course, I propose that I design a home automation unit. I would like to do this because this would allow me to test my knowledge of all parts of the course. It would allow me to test my circuit design skills, my computer programming skills, my embedded programming skills as well as my research and design skills.

At this projects core, the H.A.L. unit will be designed around an Atmel avr microcontroller. At the time of writing this I do not know which micro. I will choose, but so far my only requirements are that it has enough RAM and Flash storage for my program, as well it will need to have at least a few DACs or else I will need some dedicated DACs for the project. Other than that I am not sure, I know that I won’t need integrated USB and so far I have no need for ADCs. I may decide to use an LCD with this project (either character or graphical) but I will probably end up using one with a serial interface so I don’t need a micro with a dedicated LCD driver.

Another important part for my project is that I am very keen on having an embedded web-server for the unit. I will probably end up using either a Wiznet chip or a Microchip based solution. As well to hold any data for the web-server and to act as storage for data-logging I will need to incorporate and SD-Card storage solution.

The main idea for this project is to have a way to automate basic tasks such as lighting, and maybe music, TV, electrical appliance and computer control. If I find I have the resources and time, I would also like to explore the possibility of wireless modules that may be able to measure the power that appliances use as well as turn them on and off.

I think for this project it would be a good opportunity to use SMD based components, that way I save space and the price of components is smaller.

Thank you for considering my proposal.