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ENEL 387

# Fourth-Year Project Critiques

1) Pet FEEDer
    a. Group Members: Dave Thomas and Trevor Chadwick
    b. Title Acronym: Pet FEEDer = Pet Food Ethernet Enabled DispensER
    c. What it is supposed to do:
        i. Allow users to control a pet food dispenser from remote locations via the web.
        ii. Include a dispenser unit as well as a connected housing for a web server (with Ethernet connection) and microcontroller in the home.
        iii. Indicate the food level, dispenser status, and last time of feeding on the user web page.
    d. What it does:
        i. All deliverables were completed.
        ii. Utilizes a stepper motor to control the amount of rotations made by a paddle wheel which dispenses pet food from hopper into dish.
        iii. Utilizes IR sensors to detect the level of the food in the hopper and dish; however the dish sensor was broken on demo day. This info is displayed on web page.
        iv. Sensors used to detect whether lid is in place or not, this is also displayed on web page.
        v. For 15 (?) minutes after feeding, a 'Recently Fed' light will be lit on the web page.
        vi. Plastic housing holds a 'Siteplayer' web server as a 9S12 MCU, only button is for reset.
        vii. Feeding could also be done via Facebook or Twitter.
    e. Lessons learned along the way:
        i. "If anything can go wrong, it will on demo day"
        ii. PCB design techniques
        iii. Applications of web interfaced hardware
        iv. The mechanical aspects of a project should not be underestimated, however small they may be.

2) RECORd
    a. Group Members: Brad Arnold and Travis Samchinsky
    b. Title Acronym: Residential Energy Consumption monitOring netwoRk
    c. What it is supposed to do:
        i. Time log the consumption of several resources in the home. These include electricity, gas and water.
        ii. Monitor environmental variables such as temperature, pressure and humidity.
        iii. Utilize an embedded web server to display a multitude of information about the recorded data to the home owner.
    d. What is does:
        i. Monitors power use over time on up to 16 channels via commercially available integrated circuits designed for that purpose.

ii. Monitors water and gas use by tracking the rotations made by respective meters in the home.
iii. Users may sign in to their accounts on a web interface from any internet connected device to view their live and historical resources use. Data is represented in several graphical forms. The environment variables can also be view online.

e. Lessons learned along the way:
i. “Never assume you know anything.”
ii. “Organization, breaking things into manageable pieces and setting goals are key to success.”
iii. Claim the most difficult portion of the project was designing and building hardware that operates properly. Programming followed naturally.