Project Name: TrashTalk

Prospective Sponsor: Progress Energy

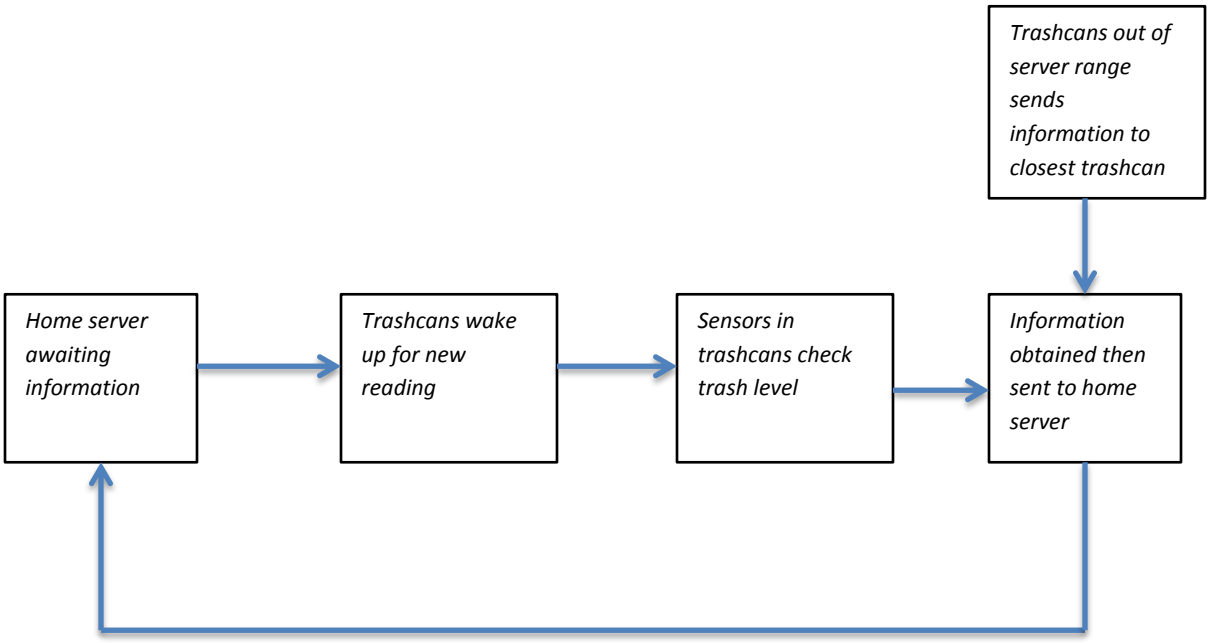
1.1 Introduction

Waste Management is an essential part of any strong developed society. Proper management can depict the cleanliness and level of comfort patrons can expect to have in their environment. Although trash and proper maintenance of trash may not be on the top of anyone's agenda, or even in the common discussion of current events, it is important. Big cities, such as New York, and Chicago pay a lot of money on workers and equipment to keep a handle on trash. The way of doing so now is simply emptying every trash can in a high demand area constantly whether it's full or not. . An efficient way of managing trash in these big cities would be cost effective as well as labor effective.

1.2 Summary

The concept of our design would be to allow a network of trashcans to be self-sufficient and be able to communicate with each other on the status of their trash level. The trashcans would communicate with one another every 30 min to update the new status. The trash cans would then send that information to a home server to allow waste management workers to visually see the activity of the cans and then pinpoint exactly which garbage bins would need emptying. Allowing the Trashcans to be self-sustaining, they will utilize a capable onboard power system, which will utilize both solar panels as well as rechargeable batteries to extend the trashcans lifespan enormously in order to minimize human interaction for maintenance.

Also a self-healing network capability will be implemented when trashcans are out of range from the home server. To communicate with the home server, out of range trashcans can utilize other trash cans in close proximity and send its information back through them in a piggy back effect. Being able to monitor the location of only the trash cans which need attending to would help with saving gas and money by finding an effective route best suitable to reach each garbage destination. Also this network of garbage bins would be labor effective by allowing companies to better allocate manpower to the appropriate areas, instead of blindly sending workers out to each and every garbage location to be emptied every 20 - 30 minutes.



Budget and Financing

Budget: $1400

Sensor detection system: $120 x 4 (two for each trash bin)
Data collection system: $120 x 3 (one for each trash bin and one for home system connected to laptop)
Trash bin: $50 x 2 (durable and strong)
Trash bin tops: $15 x 2 (dome shaped and to better accommodate the project design)
Solar panels: $60 x 2 (effective and efficient)
GPS location system: $110 x 2 (for accurate location of trash bins)
Miscellaneous items: $100 (unexpected components deemed necessary)