Edwin Wood  
Aamir Abbas  
Chaofan Shi  
Lian Wu  
Badri Narayanan

1/28/2013

# Questions Regarding *Smart Home Automation System* Requirements

1. Is an external hardware required for optimizing energy efficiency or can just modifying the timings when the devices are operated sufficient in terms of managing efficiency?
2. Is a graphical representation of usage required for suggesting the usage pattern?
3. Is it understood that HVAC devices are equipped with thermostat devices and likewise?
4. While monitoring external conditions, should SHAS have specialized external sensors in order to detect for external weather conditions, etc.?
5. How can we define energy consumption? For example, when we leave with air conditioning on, SHAS may regard it as wasting, so try to adjust it, but customer will come back in 5 minutes, so he or she doesn’t expect it to turn off. Should SHAS notify customer before it adjusts certain appliances or customer can choose whether customer should be notified before appliances is adjusted?
6. When adjusting lighting, if one person leaves the room but there are still people in the room, the light should not turn off. What is the definition for SHAS to turn of lights automatically?
7. Should password protection be required for making adjustments through the website?
8. What does it mean to control refrigerator capacity?
9. Need to define smart appliances and devices. Which devices will be included and which ones excluded from this monitoring and control? Why?
10. For the scope of this project, will these devices be simulated? Software agents/test oracles?
11. Are the devices communicating and collaborating with each other or just with SHAS? If with each other, why?
12. Can we limit the scope of the project to either provide for web support or smartphone support, but not both? What is the customer’s preference?
13. How many users will be allowed to interact with SHAS? If multiple users are allowed to interact, who gets to override the others?
14. The customer must provide specifics and better definition for “increase energy efficiency”, “appropriate energy consumption level”, and “reasonable level of comfort” (per device, preferably).
15. “The objectives of SHAS include, but are not limited to the following:” Need clarification on any objectives not listed.
16. How do you determine the homeowner remains safe? How can SHAS make this determination?
17. How will SHAS determine that nobody is home?
18. Should SHAS be able to close doors and windows for efficiency, or is a warning to the users sufficient?
19. Should SHAS actively alert users about usage habits, or simply provide reports when requested?
20. How are peak hours determined for things like hot water usage? Determined by usage analysis or by preferences set by the user?
21. How is SHAS expected to react to anomalies in usage (e.g. User wants to take a hot shower during a time when they normally don’t)?
22. Can the energy threshold for outlets be adjusted per outlet or is it a global setting?
23. How does SHAS handle devices that must be turned on always, or are unsafe to turn off by disconnecting power (devices that get hot, etc.)?
24. Adjusting lighting based on sunlight implies that light sensors are placed throughout the house. Is this the case?
25. Should SHAS alert emergency services automatically, or alert the user for confirmation first (to prevent false positives)?
26. How many cameras should be supported?
27. Are running times for smart appliances configurable?
28. Will the user be informed when a smart appliance is turned off due to exceeding run time, or are they given an opportunity to allow it to run?
29. If it starts raining while the sprinklers are running, is SHAS expected to detect it and turn of the sprinklers?
30. How will SHAS detect inactivity in a shower or bath (showers and baths being inherently passive)?
31. Is it wise to ever turn off a refrigerator? Turning on a fridge at meal times won’t be useful if the fridge had been off beforehand (it will already have spoiled).
32. When is it ever useful to remotely control a microwave? The user needs to be near it to put in and take out food.