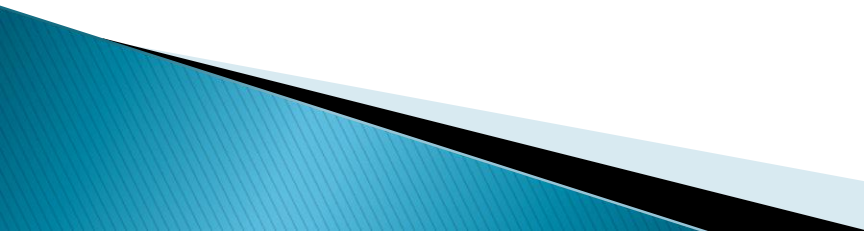


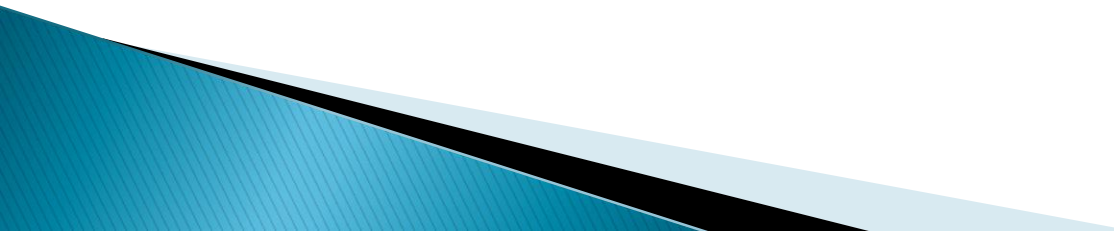
An Energy Dashboard in KReSIT

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Background & Motivation

- ▶ Residential Sector accounts for substantial power consumption
 - ▶ Need to control wastage of power at the consumer level
 - ▶ Inform consumers about their usage in comparison to their neighbors
 - ▶ Few successful experiments where consumers reduced their power usage on receiving relevant messages
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Problem Statement

- ▶ To measure the changes in power consumption of chosen rooms effected by social messaging which induces a competition among the occupants of the rooms.
 - ▶ Ascertain whether social messaging is viable tool for controlling wasteful consumption of electricity.
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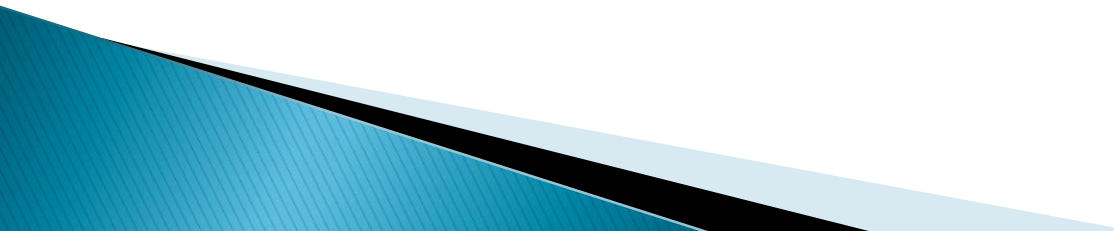
Existing solutions & Drawbacks

- ▶ Motion detectors are used to automatically turn off devices when no occupants are present
 - Installation costs
 - No sense of social awareness
- ▶ Utilities provide primitive feedback to the customers
 - Fail to identify power wastage locations
 - No categorization according to actual load

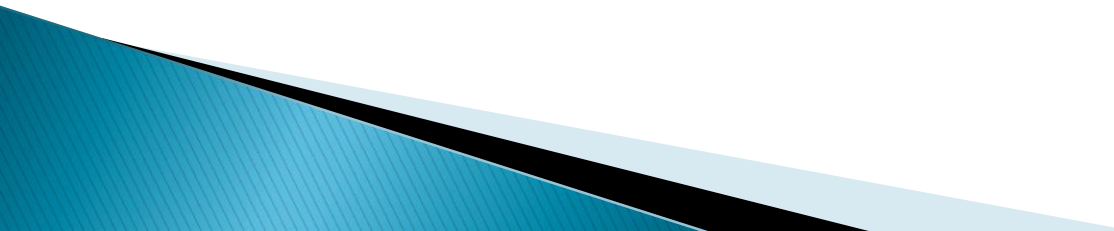
Proposed Solution

Target: KReSIT Building


Aim:

- ▶ Monitor the power consumption of labs (DIL and Synerg lab).
 - ▶ Compare the power consumption for past 3–4 days.
 - ▶ Create appropriate social messages which will inform occupants about the results, and encourage them to lower their consumption.
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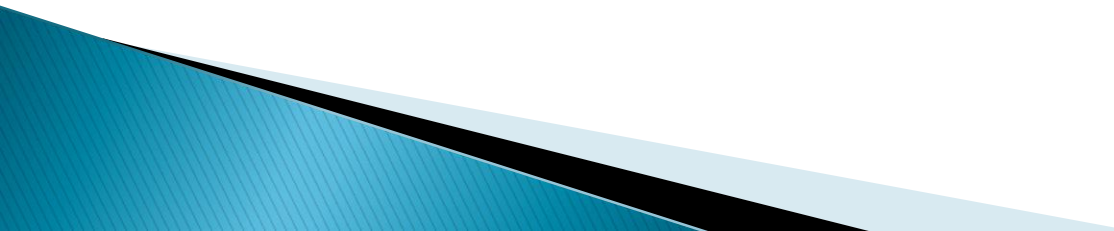
Deliverables

- ▶ Analysis of power usage and requirements for each room.
 - ▶ Collection of messages that were used.
 - ▶ Results from the changes in power consumption after implementation of project
 - ▶ Analysis of whether social messaging is indeed viable.
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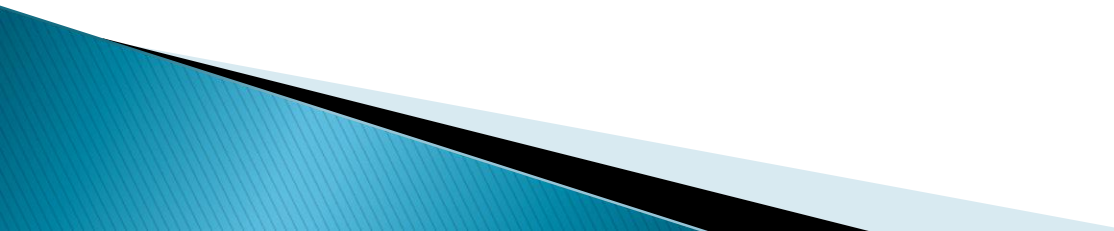
Timeline

- 20 March :- Sensor survey and gathering data about components required for wireless connectivity
 - April 1:- Installation of sensors and start of data collection
 - April 19:- Monitor the power usage and display appropriate messages
 - May 2:- Analyze change in usage patterns
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Challenges

- ▶ Determining type, number and location of sensors
 - ▶ Creating messages that will have the maximum impact on the user
 - ▶ If possible, develop a (simple) reward scheme
 - ▶ Finding locations and media through which the messages will reach the masses
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Conclusion

- ▶ This project may serve as a prototype for campus-wide projects
 - ▶ Lessons learnt here will be useful in designing large scale customer feedback systems
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References

- ▶ Bonneville Power Administration, “Residential Behaviour Based Energy Efficiency Program Profiles”, 2011
- ▶ http://www.uk.sagepub.com/upm-data/40893_6.pdf
- ▶ <http://gridium.com/blog/658/new-york-city-releases-building-energy-analysis/>

Thank You

Methodology

- ▶ Selection of power meters with wireless capability
 - ▶ Set up sensors at appropriate locations
 - ▶ Measure the consumption and gather the data wirelessly on a server.
 - ▶ Decide the content of the messages that will be delivered to the occupants
 - ▶ Deliver the messages through emails/flyers and study their impact.
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