Project I Description

Project Name: **Smart Green House**

Sponsor: **LAU**

Team Size: **4 MEE Students**

Project Overview

There is need to build homes that are energy efficient heavily relying on sustainable energy sources: renewable energy (Solar, Wind, Anaerobic…) combined with energy efficient technologies. This project invites students to investigate renewable energy resources that can be exploited at a fixed geographic location in Lebanon (Jounieh). The landmark will be provided and should be studied for thermal/acoustic isolation, solar heaters, photovoltaic, windows angle control, wind driven power, waste management, night lights, pipe lighting and any other system they will propose. The energy management of the house should be connected to central control systems that optimize several parameters (window angles, photovoltaic angles…).

Project Areas

- Energy Audit (1/2 MEE Student)
- Mechanical Design (1/2 MEE Students)

Project Deliverables

Project deliverables consist of the following:

- Full thermal study of the landmark.
- Heating Plumbing circulation maps (connected to Chimney as well as a back incinerator of disposable waste)
- Potential green house effect study similar to Levinton project in Argentina http://www.treehugger.com/files/2008/06/low-cost-energy-efficient-homes-argentina.php
- Cost study and payback time to solutions with respect to local market costs (electricity, water)
- Detailed MEP of Landmark (including insulation layers)
- Labview application of the control system, sensor selection and quotes

Project Constraints

- The study should be conducted on a specified landmark location
- Study should account for cost of proposed solutions
- Study should include innovative solutions as well as their application.

Advisors: Drs. Jimmy Issa and Ramy Harik

Students:

Team 1	Mira Attieh Roy Riachi Carine Saliba Georges Yaghi
Team 2	Samir El Khawand Mohamad Kamareddine Karim Mrad Georges Nassar