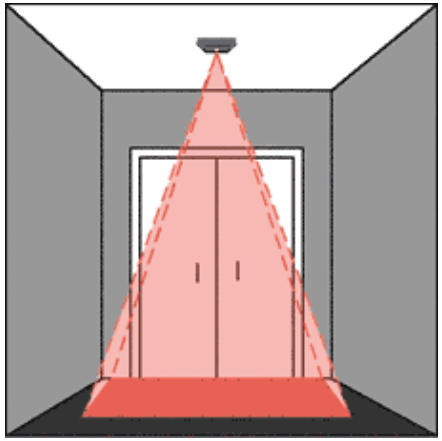
## Problem/Mission Statement

Using the research gathered on the concept of Sustainable Cities, the team will design a product that is energy efficient and will lower the amount of electricity used on campus.

Each year a great amount of electricity is used throughout campus. The cost of Penn State's electric bill alone is $17,409,222. campus.

## Solution

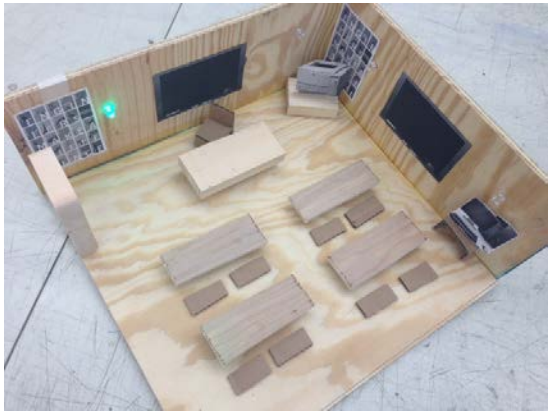
Sophisticated motion sensors that will accurately count how many people are in the classroom and thus turn on the lights and other electrical things as people enter the room. When the counter reaches zero, as people leave the room, the lights will turn off along with all other devices deemed unnecessary to be on when no one is in the



classroom.

## Prototype

Team 1's prototype shows the placement of the motion sensor devise and can demonstrate its effect on an average PSU classroom.



## Cost Analysis

Most of the cost of this project comes with the initial material purchase and installation. The cost of each sensor is between $15 and $20; however a bulk deal could possibly be made due to the extremely large amount of sensors needed for Penn State's 100+ buildings. Installation can be completed quickly, and the sensors require very little maintenance over time if any. After installation is complete, the

only cost would be the miniscule cost of electricity per sensor and any wage paid to a supervisor monitoring the rooms.

## Conclusion

The final design was chosen because it was energy efficient, affordable, and simple to implement throughout campus.

When choosing which design to use, an important factor was that it would be affordable for the university to invest in. Also, the design needed to fit in the guidelines of sustainability. The team thus decided to go with the "Lights Off" design because it best fit these specifications.

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# Lights Off Project

EDSGN 100: Intro to Engineering Design

Section 16, Team 1


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