



Introduction

At present the School of Applied Computing (SOAC) operates across three floors in the Mount Pleasant campus. The building design makes managing the environment difficult as most rooms are manually controlled. As a result, windows are left open, lights left on and radiators heat empty rooms.

Aim of the Project

The project is aimed towards the automation of a lecture / lab room. As seen in figure 1, reducing both the environmental and financial implications to the university.

Objectives

1. Automatic operation of windows
2. Management of room temperature
3. Motion activated lighting
4. Student attendance data recording
5. Chair occupancy recording

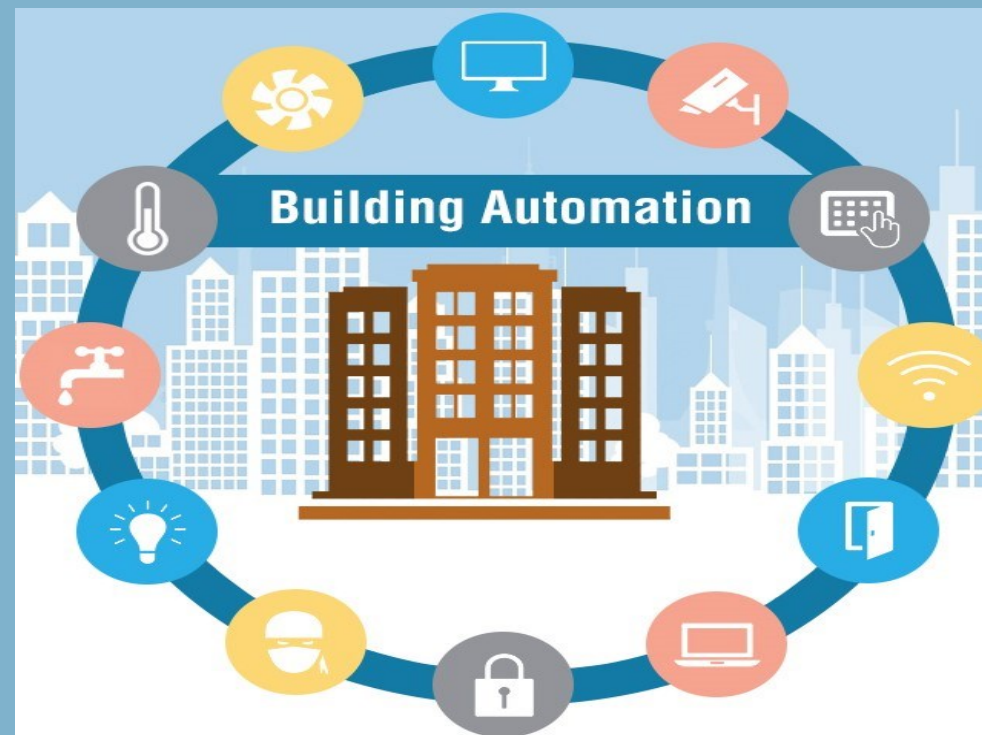


Figure 1 [1]

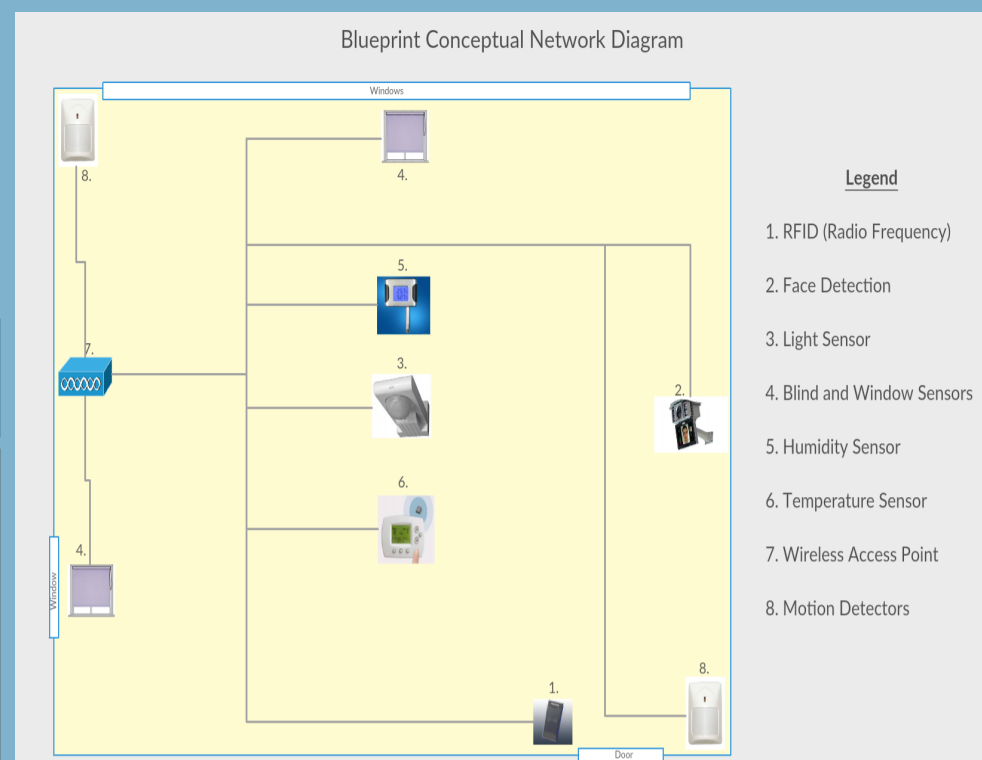


Figure 2—Blueprint Conceptual Diagram

Resources

Simulation software will be used to test network connectivity and identify potential issues of interference. QualNet, MatLab, Net Sim and Packet Tracer will be used to prototype the wireless networks. Light, Temperature and Humidity sensors will need to be purchased along with motion detection equipment. Access to MH509 to install required wireless sensor network (see figure 2). Access to a PC to collate results for comparison.

Risk Analysis

This project involves a live implementation within an operational Lab; access to the room could be limited. Availability of sensors and actuators suitable for use within MH509 could prevent live implementation. Access to electrical wiring system may not be authorised. A back-up solution has been suggested; utilise simulation software to produce results for comparison.