# EENG 348/CPSC338: Digital Systems

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## 1 Introduction

During reading week, students go to Bass Library to concentrate and study for their exams. Many students want to study alone and they tend to look for one of the individual study rooms as seen in Figure 1.

Figure 1: Individual Study Room in Bass Library

Oftentimes, one has to walk around the whole library to find an empty room. This takes around 5 - 10 minutes and sometimes all the rooms are occupied. What if there was an easier and faster way to check if there is a room available in Bass?

The goal of our project is to make an online system which will tell students when a room is available and where that room is. We will have LED buttons, as seen in Figure 2 , in each room and whenever a student enters a room, he or she will press the button and the LED will light up and whenever the student leaves the room, he or she will press the button

again. The information will be sent to a website which will have data about each room and students can easily access the website from there.

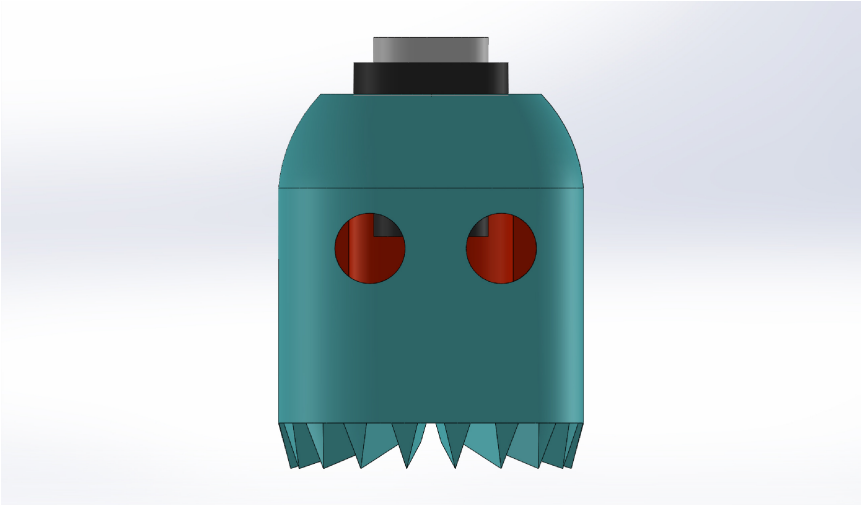

Figure 2: 3D CAD of LED button with Pacman Design

Each button will be decorated with some sort 3D printed design to incentivize students to press the button, similarly to the easy button. We will use the Arduino Nano to send data about the button state to the website using the ESP8266 WiFi module.

# 2 Materials

- Arcade Button with LED - 30mm Translucent Clear x 10
- WiFi Module - ESP8266 x 10
- Arduino Nano x 10

# 3 Project Strategy

We plan to 3D print a small container to hold the Arduino Nano and the Wifi module. Then we plan to connect the Arduino to a website and get the Arduino to send information about the state of the button to the website. Next we plan to make the website as attractive as possible so that students want to use this service since it only benefits them. Finally we hope to deploy these buttons to all of the approximately 50 study rooms in Bass Library.