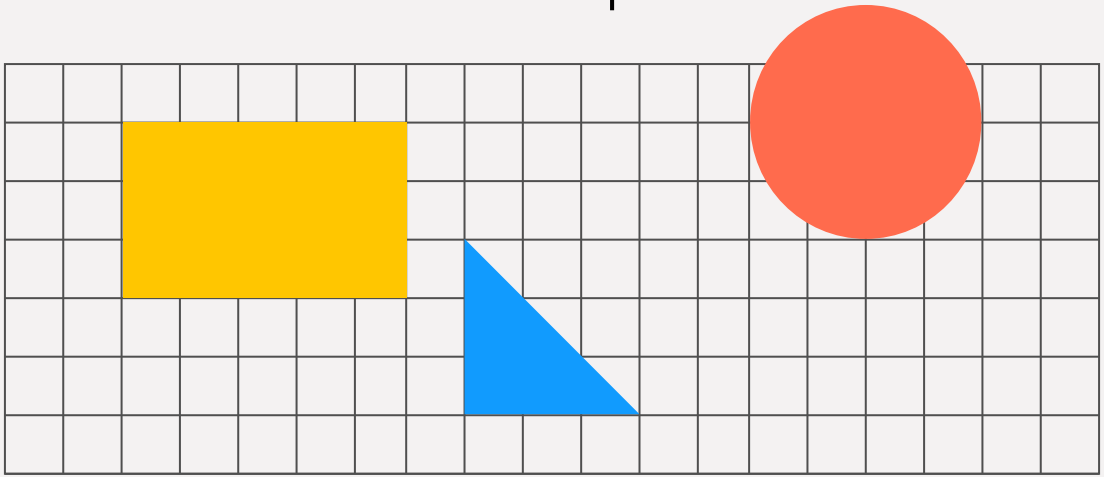
MAE 6291
Extreme Study Buddy

Aly Nguyen
GWU MAE Department



Introduction

Motivations

- Original Idea:
  - **GUI with personalized graphics**
  - **Freshman Guide to GW**
  - **Friend Finder**
- Continued Idea:
  - **Student help**
  - **Difficulties studying**
  - **Accountability**

Goals

Personal

- Get GUI practice
- Get motor practice
- End product be memorable

Project

- Extreme method to keep students accountable while studying with threats

IoT Architecture

For Personal Use

LAYER	THINGS
Application Layer - Info	• GUI Timer • Email Notifications
Network Layer - Communication	• Raspberry Pi (microcontroller) • Gmail SMTP • WiFi
Perception Layer - Sensor	• Ultrasound Sensor • Hardware - Servo Motors

Materials & Methods

Materials & Hardware Used

- Ultrasound Sensor
- 2 Servo Motors
- Raspberry Pi
- Protocol used: Gmail's Simple Mail Transfer Protocol (SMTP) through the Internet (WiFi)

App, or API developed

- Python & Libraries
  - **Tkinter (display), GPIO (pi pin control), Yagmail (email), Time (timing of events), Winsound (alarm, only on Windows)**

Methods:

- GUI Timer code
- Combined Ultrasound Sensor and Servo Motor code
- Combined GUI Timer Yagmail code
- Combined Hardware and Software code

Learning Outcomes

Conclusions:
- Relearned how to make GUI
- Learned how to use servos with a Raspberry Pi
- Error messages can and cannot be helpful

Results:
- Downsized project due to time allotted
- More practice with sensors and motors
- Felt fulfilled and vindicated in my choice to NOT become a CS major

Future Directions
- Unused parts (Display screen, LED lights)
- Graphics