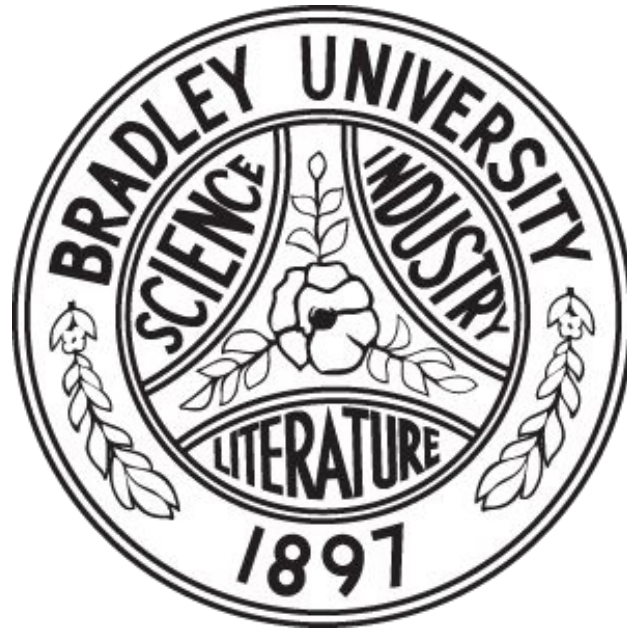


Smart Lighting System Design Review



Bradley University
Department of Electrical and Computer Engineering
Authors: Alexander Berian, Dustin McCart
Project Advisor: Aleksander Malinowski
Date: 3/1/2016

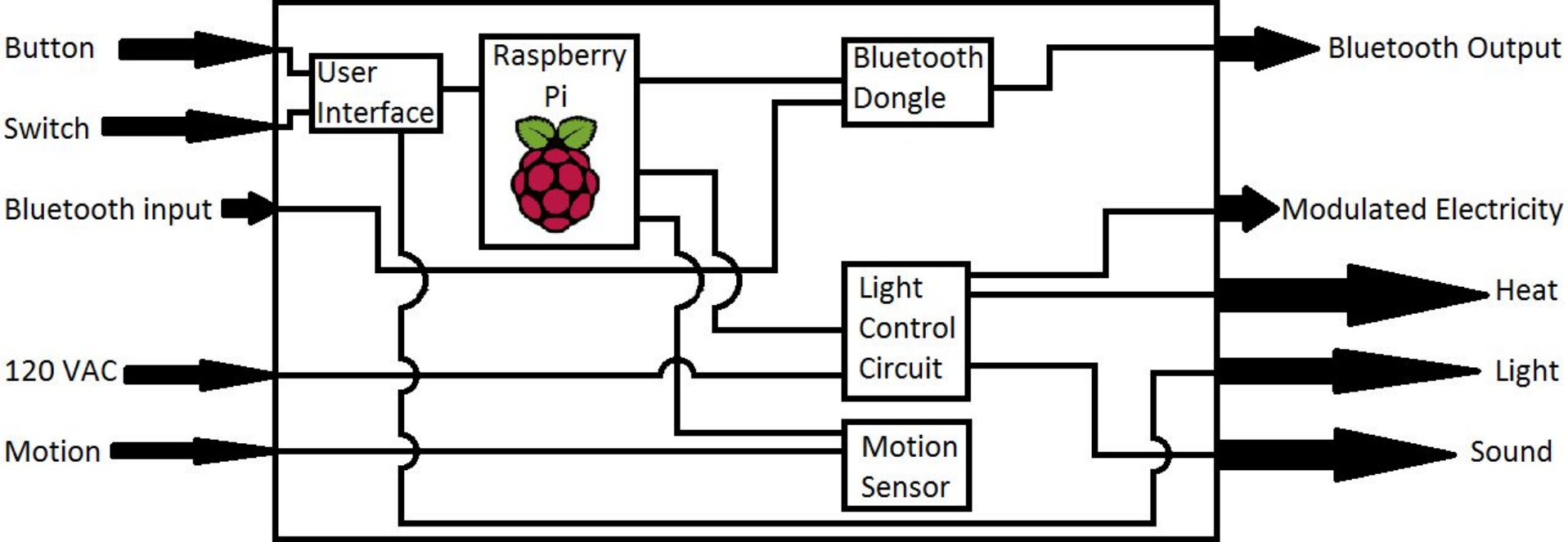
Overview

- Dustin McCart
- Alex Berian

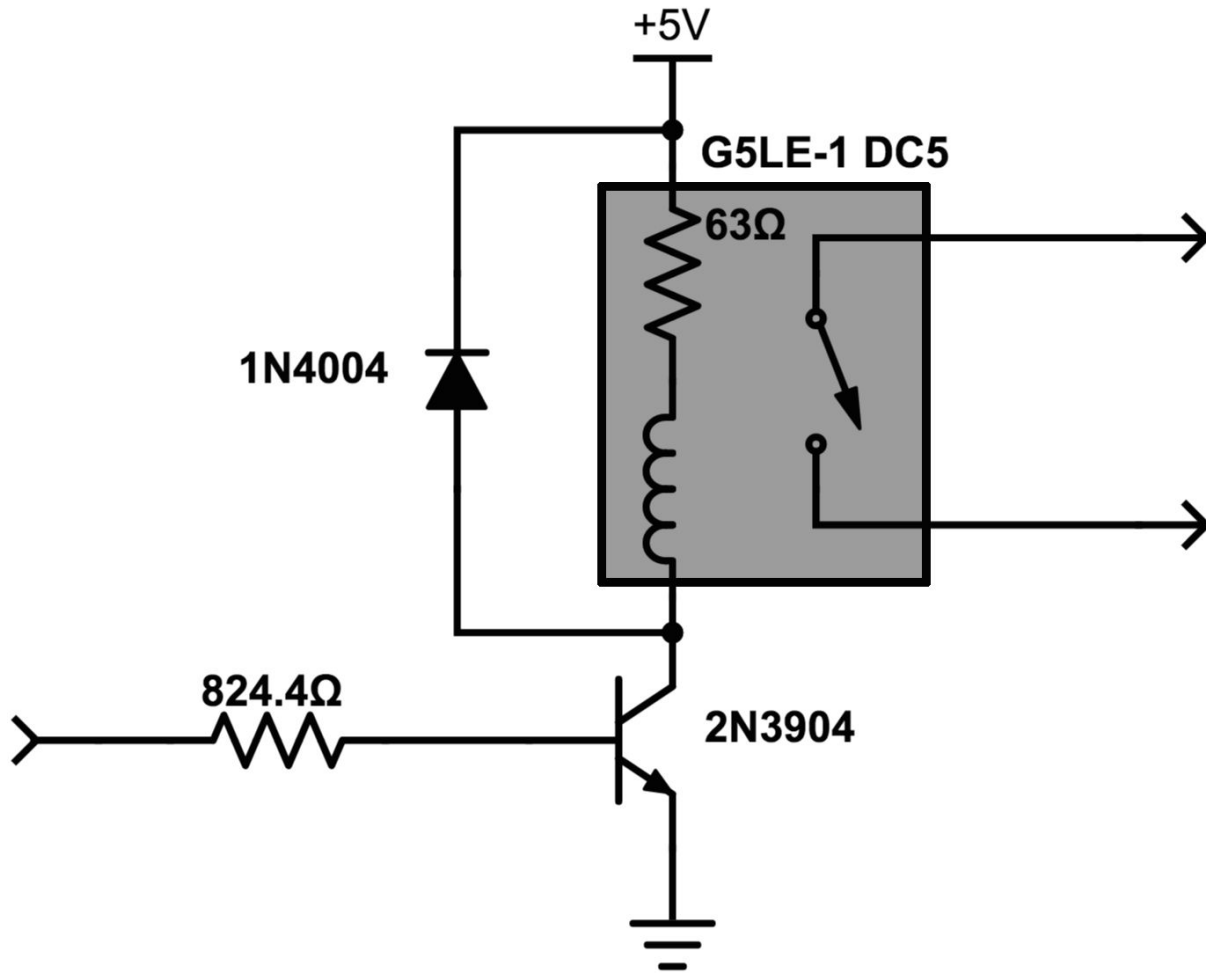
Alex Berian

- Glass Box Diagram
- Light Control Circuit
- System
Communication
- Android Application
- Updated Schedule

Glass Box Diagram

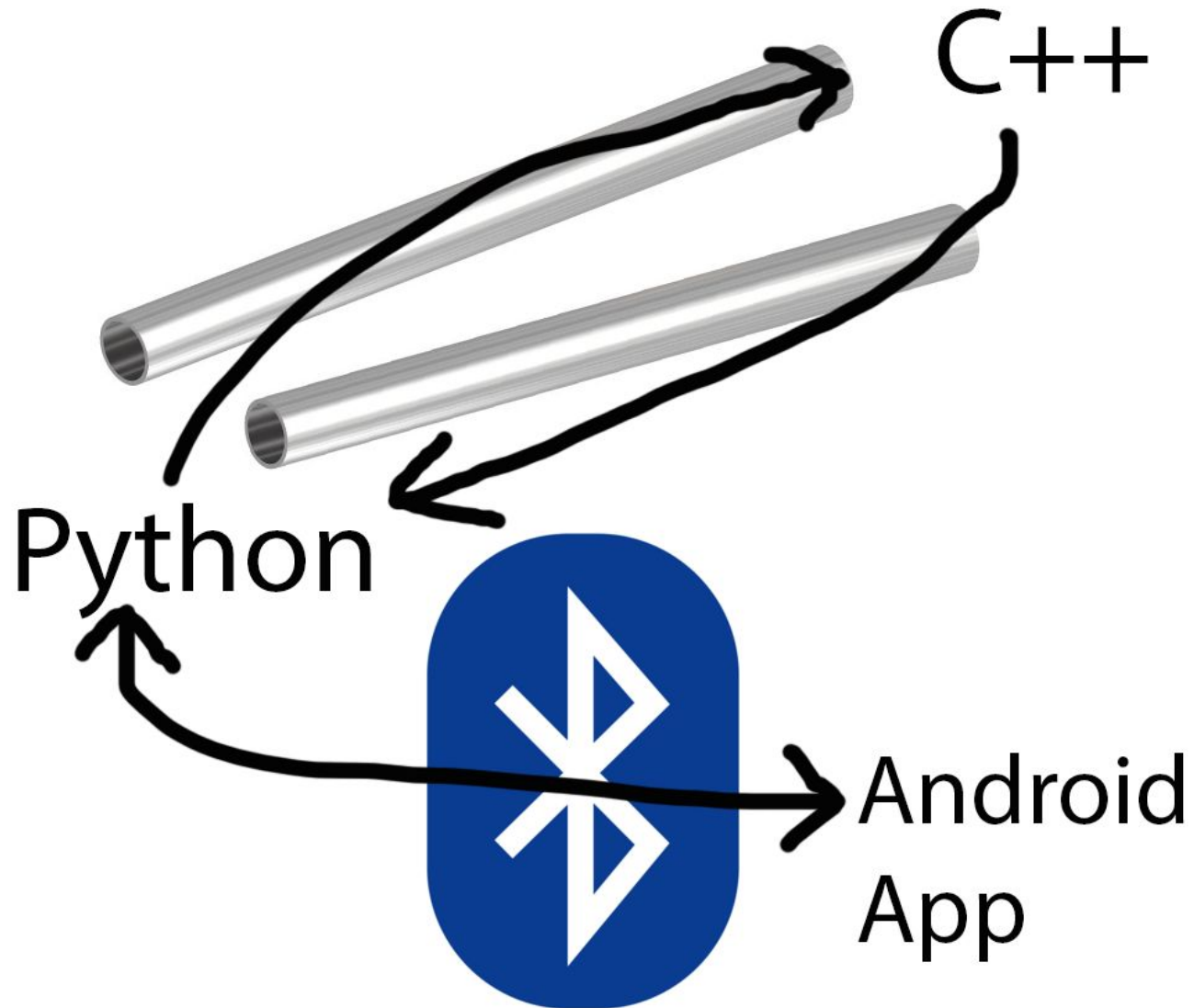


Light Control Circuit

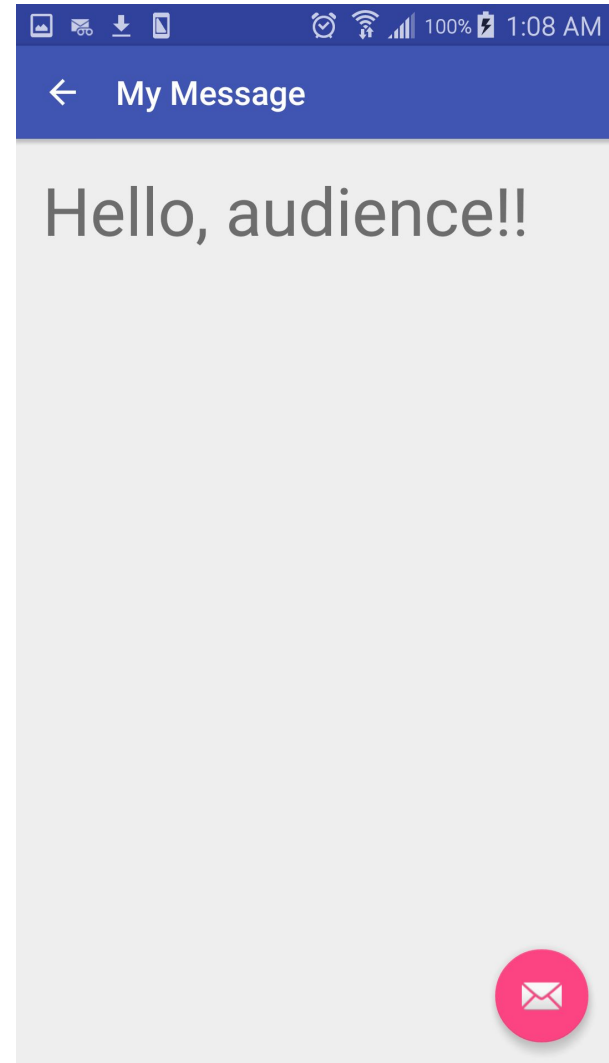
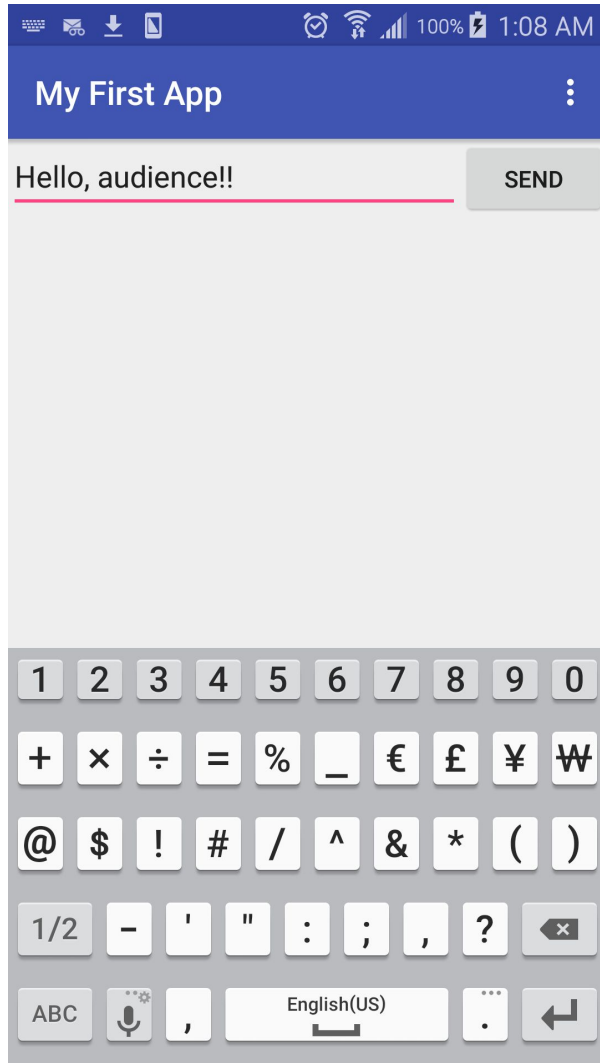


- Relay Switch
- Transistor
- Flyback Diode

Subsystem Communication



Android App Progress



Updated Schedule

Task	start	end	Percent complete									
			10	20	30	40	50	60	70	80	90	100
Bluetooth Communication	3/1/16	3/1/16	90%									
Android Application	3/1/16	3/29/16	50%									
Full System Communication	XX/XX/XX	XX/XX/XX	90%									
Final Testing	3/29/16	4/12/15	0%									

Dustin McCart

- Finalized pins for input and output
- Finished and tested 2 sets of data logging functions
- started creating a third log with all needed functions
- started working on communication with bluetooth inputs

Schedule

Task	Planned start	Completion Date	Status
Basic Programming	9/15/2015	9/22/2015	Complete
Pin Setup	9/24/2015	10/20/2015	Complete
Prediction Algorithm	10/22/2015	11/17/2015	Complete
Data storage 1st and 2nd log	11/19/2015	12/8/2015	Complete
Data storage 3rd log	added later	Unknown	65%
Mode Programming	1/21/2016	Unknown	40%
Communication Between programs	added later	Unknown	50%
Merging Programs	2/11/2016	Unknown	0%

Finalized Pins

9 INPUTS

- Light Switch
- 7 Push Buttons
- Motion Sensor

8 Outputs

- 7 LEDs
- Signal to Light Control Circuit

Finished two data logs

- One log is for the transition data the other is for date information
- Ran tests on all functions for both logs
- Created functions to make a backup text file for both logs
- Created functions to restore logs from backup file

Third data log

- Log for prescheduled events
- Part of prediction mode
- Used by bluetooth communication

Operation Program

- Controls input and output responses
- Controls 4 modes of operation
- Handles timing of system

Inputs/Outputs

- Collect and interprets information from the inputs
- System then alters functionality according to the inputs
- System then show new functionality through the output LEDs

Controls of the modes

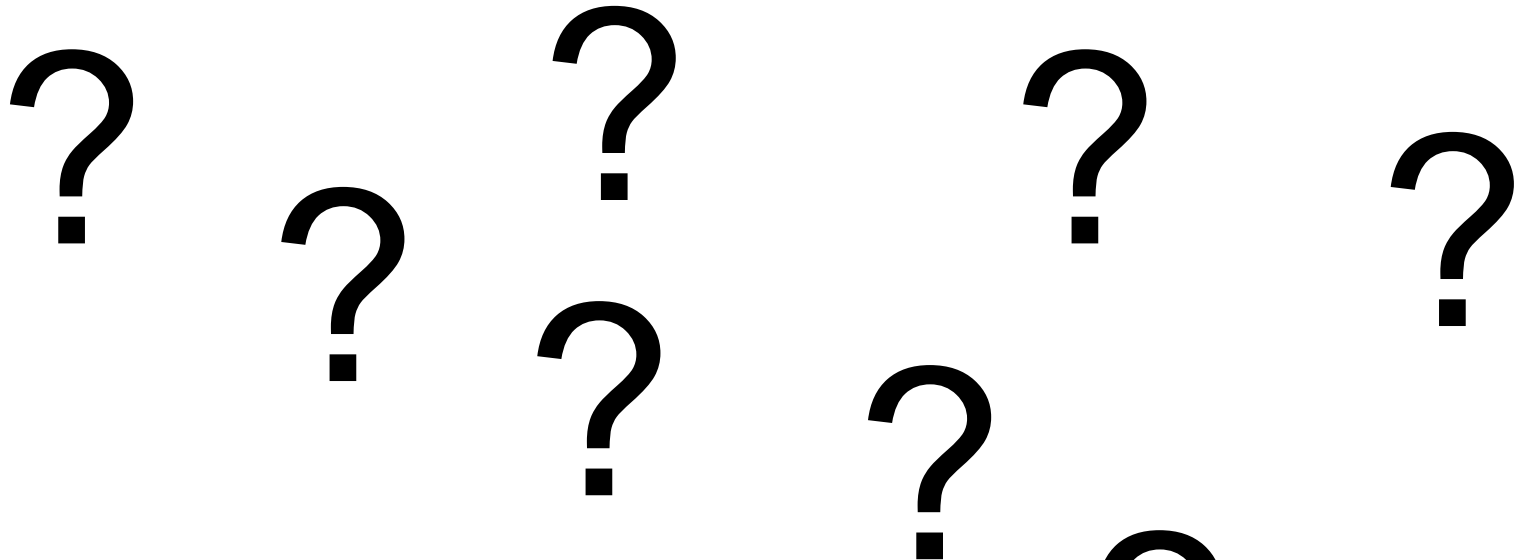
- Started the creation of the four Separate modes of operation
 - normal light switch mode
 - system lock mode
 - Prediction mode
 - Full habit recreation mode
- Created controls to manage the modes

Handle timing for system

- Uses ctime library
- Handle activation of functions
- Governors recording of events

Communication with Bluetooth

- Worked on creating a c++ program to communicate through a special fifo file
- Created a command structure for communicating with specific commands
- Creating program to read commands and respond accordingly
- Final communication will be between a python program and a C++ program



Questions

