Someone is Watching: Little Brother

Katherine Arriola, John DiPasquale, DeMetrius Jennings, Donald Taggart, Michael Vangelista-Electrical Engineering Technology

Buffalo State
The State University of New York

Project Description

Little Brother serves the purpose to improve the safety here at Buffalo State College. The goal of the team is to develop a lower cost security camera system that could be tested and taken into further consideration to possibly be placed in use with the emergency Blue Light Phone across the 44 locations on campus.

Background Information

In creating Little Brother the design team used prior knowledge as from pervious courses in Electrical Engineering Technology Program . The knowledge needed however, was not limited to Microcontrollers, Computer Information Systems, Electronics and Control Systems.

Project Objective

Figure 1: Blue Light Kiosk #20

The project's objective is to be designed to improve safety on Buffalo State Campus. One of the issues students face on college campuses, particularly at Buffalo State, is safety. Students are vulnerable to robberies and attacks, most of which, take place at night when people are leaving from evening classes or studying late hours on campus. The project can be useful for University Police Department network surveillance across highly populated areas. However, this project is not restricted to just a campus setting.

Components

Little Brother consist of a Module Lens/Camera itself possibly with motion sensor capabilities and ability to rotate when necessary that's connected to a transmitter that will send data wirelessly to one of the four sub servers placed on campus. It will then transfer to the main server afterwards from there the Director of Networking and Operational Services is able to utilize that information recorded from the device as needed. Then notify the University Police Department on where there is a crime on scene on top of all of these aspects occurring in a timely matter.

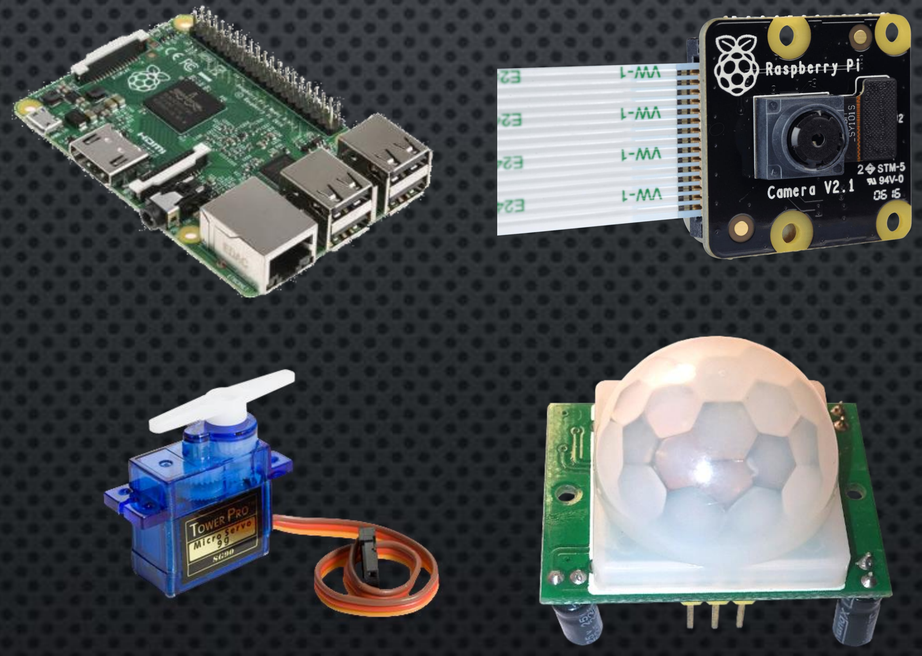

Figure 2: The components featured from Left to Right : Raspberry PI 3, V 2.1 Pi Camera module ,Tower Pro SG90 Micro Servo , Adjustable PIR Motion Sensor

Current Performance

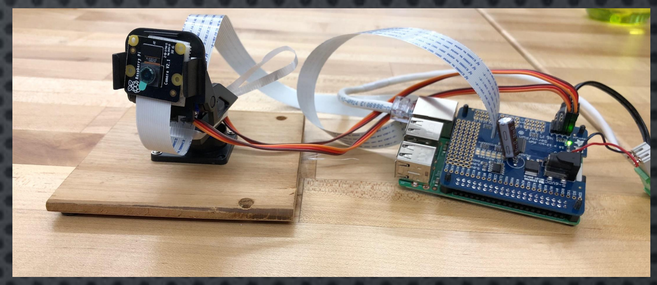

Figure 3: Little Brother Prototype

Little Brother successfully is utilizing VLC media player software as a platform which allows the team to capture a short video of the area and send this data to the main servers on Buffalo State College campus. The University Police Department can access the file and see playback footage of what was recorded. We are currently implementing the PIR Motion Sensor notice motion, the UPD has the option to move the camera.

Future Development

The device is currently a benchtop prototype. The areas of improvement to be considered include creating another variant of Little Brother ,particularly creating a variant with multiple cameras and sensors. A potential modification to the design include customizing Little Brother to function under various weather conditions. This would include implementing only static components to potentially reduce the cost and time of maintaining Little Brother in comparison to the current design which includes the Pan/tilt Camera Mount.

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