

LITTLE BROTHER

Contract of:

Katherine Arriola

John Dipasquale

DeMetrius Jennings

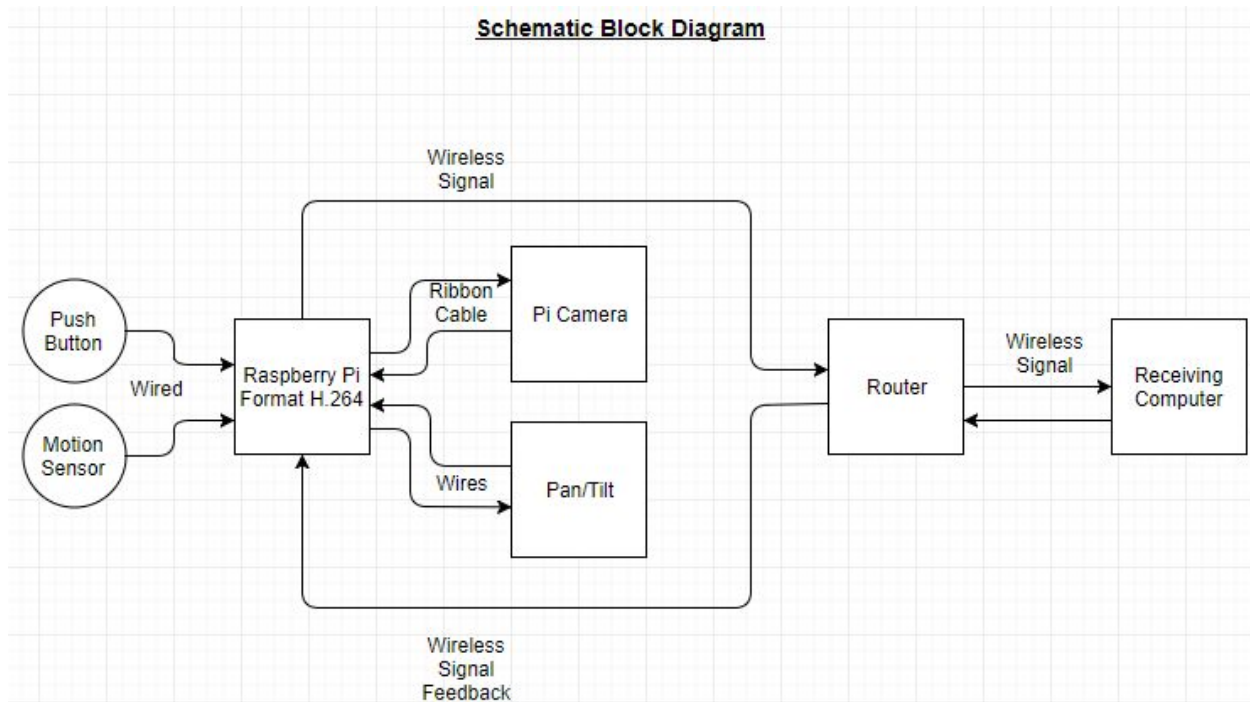
Donald Taggart

Michael Vangelista

PROJECT DESCRIPTION:

The Little Brother project is 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 night classes or studying late hours on campus. Little Brother can be useful for the University Police Department network surveillance across highly populated areas. However, this project is not restricted to a college campus setting. It can also be used in areas such as retail stores, restaurants and parking lots.

FLOW CHART



PROJECT ASSIGNMENT

COMPONENT OF PROJECT	ASSIGNED MEMBER
Programming Raspberry Pi System and Purchasing equipment.	John
Assist the implementation of Pan/Tilt System as well as the Motion Sensor.	DeMetrius
Implement Pan/Tilt System.	Donald
Team Leader, Gather information about surveillance cameras, particularly the H.264 Format and Operations.	Kathy
Implement Motion Sensor.	Michael

THE PROBLEM

One of the current issues at Buffalo State and nationwide is safety. The current setup used to prevent or reduce student harm is the Blue Light Telephone System. This safety system enables people to contact the Buffalo State University Police Department quickly from the 44 locations around campus. Each Blue Light Kiosk currently contains a red emergency button, a microphone, a dialing pad and Blue Light that's located on top of the kiosk.

Whenever a person is in need of assistance, he/she can use the dialing pad and if it is an emergency situation the student can press the red button to alert the Campus Police. If the student needs to run from the threat, as he/she is trying to get away, they can press the red emergency button on as many kiosks in their path to create a trail. The data recorded from our system can assist Buffalo State University Police in identifying who is in trouble and what their surroundings looked like at the time of the emergency.

Little Brother's objective is to enhance the current Blue Light Telephone System by improving campus surveillance while being cost efficient. Little brother will include additional features which may include: pan/tilt, motion sensor, and rotation to assist in monitoring activity on campus.

Once the emergency button is pressed or motion sensor is activated the camera will capture a video of the immediate activity in the area. The data will then automatically relay to the campus database which is available to the University Police Department.

The project is prohibited from hardwiring ethernet directly into the system from the kiosk. An alternative process involves to wirelessly transmit data captured from the camera to servers located in any one of the buildings on campus that will receive it. The data will be transferred wirelessly while following Buffalo State's Video Surveillance Policy. The University Police Department will then have access to the data. After gaining access they can use the footage acquired to handle the situation.

Updating the school's surveillance would require budgeting and planning, Little Brother will be developed as a bench-top prototype for another team in the future to implement into the Campus' kiosk. One of the constraints is the learning curve required to program the Raspberry Pi. The components of the project consist mainly of Raspberry Pi development board, camera, motion sensor, pan/tilt camera mount, transmitter, and router. The size and weight of these components will also be taken into consideration when constructing Little Brother.

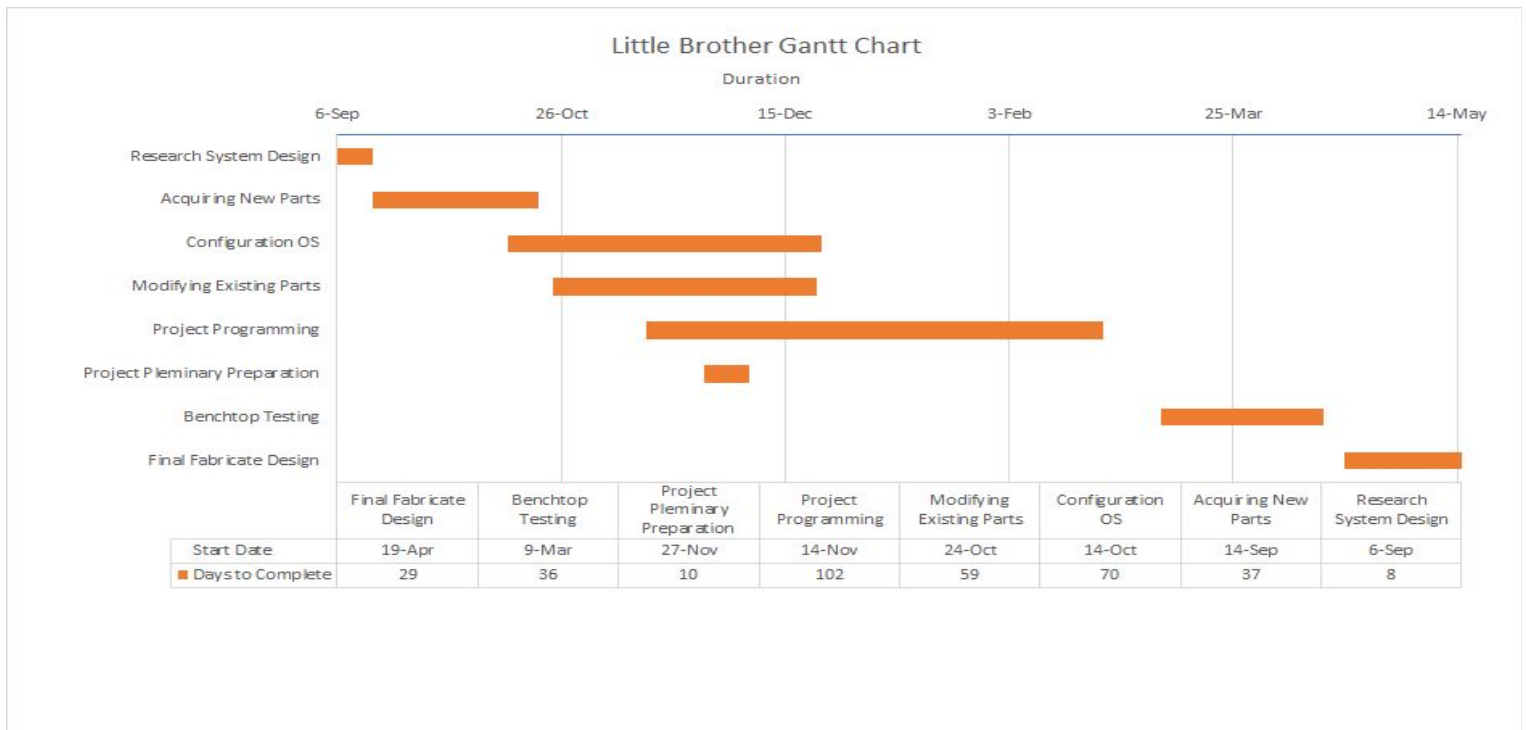
THE PRELIMINARY DESIGN

During the Preliminary design review, Little Brother's functions and components will be presented during class. The demonstration will consist of a camera which offers both H.264 format and compatibility with the Raspberry pi to take a picture of its environment and sending the data of the picture wirelessly through a router to a connected laptop/computer.

THE FINAL PRODUCT

In the Final Design Review, the final product will be the experimental prototype which includes all the assembled components. The prototype will have the Raspberry pi, camera, transmitter, and router. The video collected from the camera will be transferred to the router that will be connected to a receiving computer, as shown in the block diagram. The final prototype will be supported by a product manual, a schematic, and a list of component prices. The University Police Department will have the option to approve and implement Little Brother to the campus surveillance system.

GANTT CHART



SIGNATURE PAGE

Katherine Arriola John Dipasquale DeMetrius Jennings Donald Taggart

Michael Vangelista

FACULTY

Steven Barker (Faculty Advisor)

Ilya Grinberg (Faculty Coordinator)

CLIENT

Thomas Killian & University Police Department

Team CONTACT INFORMATION

Name	Email	TELEPHONE
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Donald T ██████████	████████████████████	██████████
Michael V ██████████	████████████████████	██████████