**Introduction**

- This project aims at improving an information collecting method, which is appropriate for business development, in some transport companies. Citizens find it difficult to get on bus during peak hours. Under this project, they will be able to manage their time more efficiently and facilitate the overall output of Hong Kong.

- It develops a tool to notify people the coming transportation’s seats availability on real-time situations. This includes the use of Passive Infrared sensor, Arduino system, FTP server and the OpenCV software.

- In this project, an application will be developed to display the result.

**Niche**

- Nowadays, bus companies send human forces to conclude the passenger flow on buses. However, counting by humans has a high error risk. Therefore, a more accurate electronic device should be implemented in any compartments.

**Methodology**

**Arduino and Sensor**

- Problem: Time Delay
- Problem: server connection problem

**Processing**

- Problem: Code
- Problem: instant image failure

**FTP Server**

- Problem: Serial data reading
- Problem: Data transfer

**OpenCV**

- Problem: instant image failure

**Calculation**

- T = \frac{R \cdot C}{R + C} = \frac{20 \cdot 0.1}{20 + 0.1} = 0.095\text{s}

**Result**

- To get passengers information
- Serial data reading
- Data transfer
- The result will be shown in the app

![Bus Route](image)

**Conclusion**

According to the project, we successfully design a protocol for estimating the number of people on bus and calculating the remaining seats. We also attempt to analyze a face in a photo. It is hopefully that the project would bring about life convenience. People can get a sense of space comfort when they browse to the application. However, further work has to be done to provide the instant photo analysis.