Problem Statement: Traffic congestion often leads to significant time wastage for commuters, which can be easily alleviated by redirecting traffic to less congested routes.

Solution: Our solution involves the development of a mobile application that provides users with real-time traffic flow and congestion information. The primary objective is to empower commuters to make informed decisions about their routes, ultimately distributing traffic evenly across available roads rather than causing congestion in specific areas.

Key Components of the Project:

1. **Data Collection:** To monitor vehicle flow in specific areas, various data collection methods can be employed. Traditional approaches involve using traffic cameras and machine learning algorithms to identify and count vehicles, but this may be cost-prohibitive. Alternatively, cost-effective methods such as Pneumatic Road Tubes or Piezoelectric Tiles can be considered to collect data on vehicle passages. This data should include location and traffic volume.
2. **Data Transmission:** The collected traffic data needs to be transmitted to our application's API for real-time analysis and presentation. Services like ThingSpeak channels can facilitate the transmission of data efficiently.
3. **Crowdsourcing:** Implementing crowdsourcing techniques allows users to contribute to traffic data collection. User feedback and data from sensors on users' mobile devices can be utilized to supplement existing data sources and enhance the accuracy of traffic information.
4. **Client-Facing Interface:** The user-friendly mobile application will serve as the client-facing component of our project. It will utilize maps from OpenStreetMap to display roads and pathways. The application will dynamically highlight or color-code roads based on the collected data, providing users with a visual representation of traffic congestion levels.

By addressing these components, our project aims to provide commuters with a valuable tool for navigating traffic more efficiently and reducing congestion on our roadways.