

## **ABSTRACT**

Counts of the number of bicyclists on roads give community-based organizations strength in appealing for improved bike infrastructure from city governments. Bicyclist count data can also be used in conjunction with vehicle counts and collision data to better understand factors that contribute to motorist-bicyclist collisions. Bicyclist count collection involves manual methods where volunteers fill out paper forms for bike coalitions, and automated methods such as video cameras set up on roads to capture bicyclist movement. This thesis presents a mobile application through which users generate bicyclist counts (Volunteered Geographic Information, VGI), and a website that provides a method for users to review these bicyclist counts. Both the application and website developed in this thesis contain motorist-bicyclist collision data derived from an authoritative source (Professional Geographic Information, PGI). Counting bicyclists in high collision areas can indicate of these areas see a high or low amount of bicyclists, making the motorist-bicyclist collision PGI germane. The bicyclist count collection method produced by this thesis serves as a model for community-based organizations that want to collect bicyclist counts by means of an inexpensive and automated method.