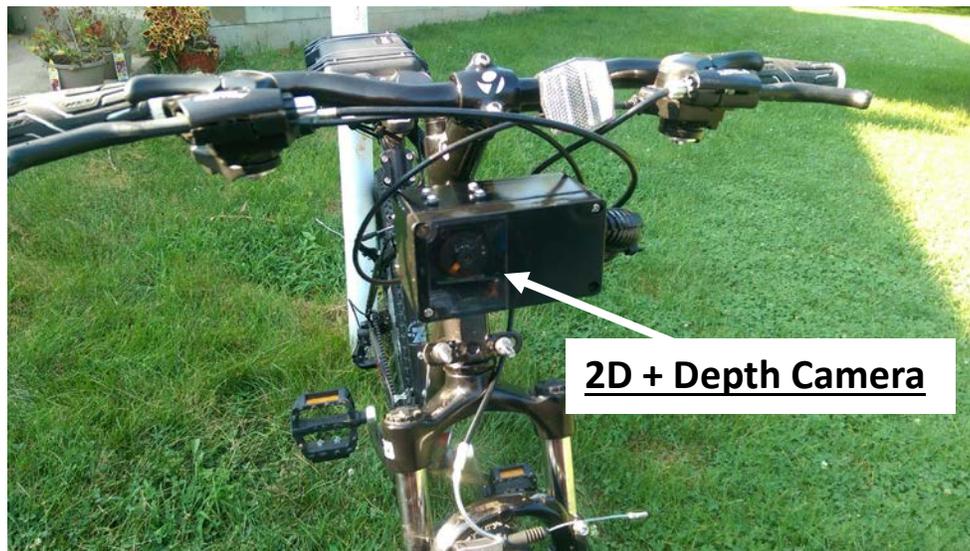


Title of Project: Understanding Naturalistic Bicyclist Behavior for Safety and Sustainability (*IU Internal Funding 2016-17*)

Project Director: David Good (PI), Lauren Christopher, Stanley Chien

Area: 3D image capture from bicycles

Brief Description: Over the last several decades, bicycles have grown into an increasingly important part of our overall transportation system and are used by adults and children for recreation, transportation, and as a component in the overall need to combat obesity through increased mobility. This increased activity is not without unintended social consequence. Bicyclist have largely followed the steady decline in fatalities since the 1970s. However, since 2008 bicyclist fatalities consistently increased to 726 fatalities and 49,000 injuries. The purpose of our proposed study is threefold: 1) to conduct a pilot project looking at interactions with vehicles and from the perspective of the bicycle rider by instrumenting the bicycle with high definition video. This is important because other approaches such as putting cameras in cars or at intersections incorporate only brief snippets of data on an individual bicyclist. This is a weak research design because more subtle changes in behavior are lost by comparing behavior of different cyclists under different circumstances rather than the same cyclist under different circumstances; 2) to develop some new technologies that can be applied to this problem by using a high definition 2D+depth camera, GPS and accelerometers that can collect key data on the environment and the rider with better accuracy and lower system cost. This is important because bicycle-vehicle crashes occur when someone makes a mistake. A common mistake is misjudging the gap or time to collision with an oncoming object. By performing more accurate gap measurements are misperceived, countermeasures can be developed; and 3) to use these data to provide some answers to important questions about bicycle crash causation, future standard setting for crash imminent braking systems, and to better integrate bicycles into the US intelligent transportation system.



Link: TBD