B.I.K.E. Helmet: Bicycle Intersection 'Kollision' Eliminator

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In 2013, over 48,000 people on bicycles were injured and 743 killed in accidents involving cars in the United States. A significant proportion of these accidents occur at intersections. How can bicyclists be more defensive by knowing where cars are so that they can avoid accidents at intersections completely? The B.I.K.E. System was designed, built, and programmed to warn cyclists of approaching cars at intersections, allowing the bicyclists to avoid them. The system consists of two major components, one in the stop light computer, and the other on the helmet of the bicyclist. A display on the helmet warns the cyclist of the direction and relative position of approaching cars at intersections. This system uses the preexisting inductance loop car detection systems already in use by most stoplights, allowing the system to be easily and economically implemented in the real world. Data was collected on the distance at which the B.I.K.E. Helmet could connect to the B.I.K.E. System in multiple different types of intersections, including an open road, the top and bottom of a hill, and in a city. Using the data collected, calculations were performed to determine the time the bicyclists would have to react before reaching the intersection. In conclusion, the B.I.K.E. System was a success. Even in the worst type of intersection and a bicyclist traveling at a higher than average speed, the B.I.K.E. Helmet warned the cyclist of approaching cars an average of 10.5 seconds before the intersection.

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