



# Monocular camera based time-to-intrusion estimation

**A method for estimating the time-to-intrusion of a vehicle to a protected zone using only a monocular camera**

**IP Status:** Provisional Patent Application Filed

## Applications

- Protection of Vulnerable Road Users
- Cycling Safety
- Construction Safety

## Technology Overview

Vulnerable road users such as cyclists and construction workers benefit from monitoring tools that can detect potential intrusion of vehicles into protected zones. Current approaches rely on expensive instrumentation such as Radar or LiDAR which can also be bulky. Researchers at the University of Minnesota have developed a method to estimate the time-to-intrusion of a vehicle to a protected zone around a cyclist or construction worker using only a monocular camera. This method allows a warning to be provided to at-risk individuals at a reduced cost, smaller form-factor, and without requiring any a priori knowledge of the surrounding vehicles.

## Phase of Development

**TRL: 3-4**

Working prototype

## Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

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## Researchers

- [Rajesh Rajamani, PhD](#) Professor, Department of Mechanical Engineering

## Technology ID

2024-129

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