Tomorrow's Crosswalk with Safe Stroll

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According to the National Highway Traffic Safety Administration, "In 2017 there were 5,977 pedestrians killed in traffic crashes in the United States. On average, a pedestrian was killed every 88 minutes in traffic crashes." This engineering project revolves around the idea of designing a safety device capable of alerting crossing pedestrians of speeding vehicles ahead of time to avoid accidents and fatalities. The main components of this device are an Arduino board, lasers, and photoresistors. The device utilizes C++ as the primary language, and a sensor to track the pedestrian and their movement in the crosswalk continuously. The lasers and photoresistors are lined up at a predetermined distance from the crosswalk, allowing pedestrians the time to process and respond to the alert. During testing, the warning system was successful as it met the requirements of warning the pedestrian that an oncoming vehicle was traveling at a speed where it would not have enough time to stop before the crosswalk. During testing, there were a few times where the system either did not trigger or had a false alarm. However, this was likely due to the limitations of the ultrasonic distance sensor and triggering system. With the support of city engineers, in further device iterations, I would like to use the vehicle sensors that are built into the street to trigger the speaker to improve testing results.

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