The PART* Program: Improving Emergency Response Times (Police and Ambulances Regulating Traffic)

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The effectiveness of Emergency Response Vehicles (ERV) affects thousands of lives and properties that are at risk each day globally because approximately 1 in 2 ERVs does not reach its destination in time. Effectiveness is limited by the ERV's current siren-and-lights signalling system. The objective of this project was to develop a more effective early warning system for ERVs. The root-cause of siren-ineffectiveness was investigated and significant siren audibility and lack of directionality were identified as critical limitations leading to insufficient reaction times and poor driver motivation to comply. It was hypothesised, that a solution using the internet, mobile devices and GPS technology would be vastly superior in both aspects – speed and accuracy. Alternative conceptual designs were investigated and a pull-model using a web-server polling method was selected. The solution incorporates audio and visual alerts with graphic images of the approaching ERV indicating its location and destination. Experiments were designed to measure the driver reaction-time available and the location accuracy of PART against the published siren benchmarks. Testing indicates at least a nine-fold improvement in the available reaction time for commuters. It also shows a four-fold improvement in locational accuracy. 'PART' reaches a timely and unambiguous audio-visual alert to vehicular traffic enabling and motivating drivers to make way well in time improving the ERV's effectiveness. The solution, fitted on smart dashboards or hands-free stands, will supplement the sirens-and-lights (which will be necessary for pedestrians) and potentially transform emergency services worldwide, saving thousands of lives, property and preventing crime.

Awards Won: