The current Malaysian traffic system needs an upgrade in terms of red light detection and traffic signal optimization in order to increase road safety and inefficiency. Current red light detection is scarce due to high implementation costs while pure time-based traffic signal systems increase congestion and thus emissions.

This is where our product comes in. Streamlights identifies passing cars and stores them in a database. This allows for red light running detection and vehicle idle time reduction. When red lights are active, the images of cars that have exited the frames are sent to government officials. Furthermore, green light signals are prolonged in one lane when opposite lanes are empty.

Here’s the demo of our product. We begin by inserting 2 videos representing real-time traffic on a given junction. For the sake of this demo, we will use one short clip of cars moving and another with no cars present. Our program subsequently outputs these 2 videos and some data below. An example of what our application can provide is a graph of the number of vehicles passing against time for a given traffic light.

Here is a simulation demonstrating an ideal result when one lane has cars and the other is empty. On the left is our product in action and on the right is a typical traffic light operating on timers. Each white block represents a car, and this light here represents the state of the road, whether green or red.

Currently, our product is already commercially viable -- it functions with regular low-cost camera systems. In the future, two features will be added: automatic identification of red light running car plates and automatic error detection, where the program realizes that its functionality has been compromised.

Of course, there are a few caveats. Firstly, constant surveillance raises privacy issues; secondly, the object detection algorithm must be further refined to account for adverse situations such as bad weather and lighting.

Nevertheless, we believe Streamlights could potentially be our future.