Traffic detection

The Problem
This city is filled with various intersections (specifically intersections without stoplights) that have visual obstructions on/near the corners, which prevents drivers from seeing any oncoming traffic. How many times have you tried to turn from a parking lot or residential neighborhood onto a busy street with a 45+ mph speed limit, and can't pull forward to check for oncoming traffic without blocking pedestrians/cyclists or creeping forward into traffic?
I have also found papers which show the visual obstructions, combined with people not properly surveying for oncoming traffic, are the #1 cause of accidents at these uncontrolled intersections BY FAR nationwide.

Other Proposed Solutions
New vehicles have sensors which can potentially talk to each other, and some, such as new Fords, have LiDAR sensors on the front for this very issue. Still have to pull pretty far forward though. Also, as we heard from the panel, it will be 20+ years before significant enough market penetration to where this isn't an issue. My solution provides an infrastructure based redundancy with possibilities for additional functionality.

Convex mirrors are typically pretty small, give a warped perception, are hard to see at night, and are HORRENDOUS for judging speeds and distances of oncoming vehicles, especially when we are talking about cars approaching from 1000+ feet away at 45 mph +.

My Proposed Solution
A camera/sensor based device pointed at the visually obstructed oncoming traffic. The detection system will have an illuminated warning signal to alert drivers when it is not safe to turn out because there is a vehicle approaching based on the moving vehicle's distance, velocity, and acceleration.
On nearly every corner I have observed this issue, there is a light pole. This offers two things.
  A mounting point for the device.
  A power source.

Extra Info
I have conducted research and found CDoT had a very similar program, aimed at controlled intersections (traffic signals), but the feds cut their funding for political reasons and because at the time, tech wasn't quite there yet. I have already spoken with a CDoT engineer who worked with Berkeley and U of Virginia, and read through the reports, which have a great amount of information that lends itself to this project. He thinks this project has strong potential.
Already have Brendan Morris who has volunteered to serve as a mentor for the project. Brendan has experience with camera-based detection systems.

Role of EE/CPE
May to charge a battery while the light pole is energized at night, for device to operate during the day, so appropriate calculations must be performed.
May need to explore solar PV options (unlikely)
I was looking to use a Raspberry PI with OpenCV to recognize the vehicles based on pre-trained algorithms. We need a setup that can generate minimal heat and consume minimal power.
May need to look at creating redundancies within the system. (Two boards for processing, two cameras, etc.)
May need to help with programming (Coding will likely be done in Python or C++, but I have experience in Python.) The vehicle detection can be done in 6 lines of code with Python and
OpenCV. Pre-trained models already exist, but I am not certain if we can achieve on-the-fly detection.
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