

N NEWS

BRAKE THROUGH

Local student invents a new progressive brake light system

BY ELIZABETH LIMBACH Many people claim to get their best ideas while driving. Peter Livingston certainly did.

It was in stop-and-go traffic that Livingston, now 18, got the bright idea for his first invention. The car in front of him had stopped quickly and he followed suit. However, the car behind him didn't get the memo to brake abruptly, and the driver was forced to slam on his brakes, skidding to a dangerous halt.

"He didn't hit me, but just hearing the screeching tires and thinking 'oh no, I'm going to be hit' made me realize that if he had known I had applied more [brake] pressure than usual, it wouldn't have happened," Livingston says.

And so the progressive brake light system (PBL) was born. With support from his college advisor and an electrical engineer, Livingston created a braking system that signifies to other drivers how hard the brake is being pushed. The system relies on a magnetic sensor beneath the brake pad that responds to how close the brake comes to the wheel rim. This is then translated to the brake light, which is equipped with 72 light-emitting diodes, allowing a range in the amount of red light shown to indicate the level of braking. When slamming on the brakes, for example, the progressive brake light is fully illuminated. When lightly tapping on the brakes, a few bars of red light appear in the center.

"What I would ideally want is for this to replace the existing third brake light," Livingston says, leaning against the hood of his dark green Honda Accord. "Instead of having a light that turns on and off, this would be in its place."

The idea seemed like such a no-brainer to Livingston that he was surprised to find no pre-existing patents for it. He now has a provisional patent on the invention, which is not something many of his peers can say, only three months out of high school.

To think it all started with Legos. As a child, Livingston had huge tubs of the little plastic blocks and was dedicated to building models

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with them. The interest in building developed into a passion for engineering and technology that led him to create the PBL.

"This is the first time I've built something that actually has a purpose and is more complicated and sophisticated," he says, adding that fixing computers had been the height of his work in technology since his golden Legos days.

"It's a considerable jump, but I didn't go from Legos to this. There was a little bit of in between space ... but not a whole lot," he says with a smile.

Unlike with toy models, Livingston is proud to have devised something that is not only practical, but something that has the potential to save lives, too.

"It's not 'look I made this and it does this' and that's it. It has purpose. There are hundreds of thousands of rear-end collisions every year, lots of deaths, lots of injuries. This can prevent so many of those. And it can save millions of dollars in car repair."

For now there is just the one, car stereo-sized prototype sitting beneath his driver's seat—working perfectly and ready for demonstrations, but yet to be replicated or sold. Livingston hopes to sell the idea eventually, but is momentarily preoccupied by

his big move to UC Irvine this month, where he plans to pursue engineering. Rest assured, he's not going to let the distractions of college life deter the future of the PBL.

"I'm definitely not going to forget about it," he says, planning to return to the project when he comes home for winter break. "If it turns out that the Department of Transportation doesn't like it, or something else happens, I'll say, 'That's fine, I've made something and that's totally cool.' But I definitely, definitely, definitely want to keep going with this until I can't take it any farther."

His determination to see the product fulfill its potential stems from a genuine desire to make a difference. He doesn't want the recognition of running his own PBL company ("I'll be concentrating too much on college"), and isn't confident that the idea will make him a millionaire ("Everybody's sayin' that. We'll see."). All he wants is to spot his invention doing its job on the road.

"I'm probably not going to see it on all cars, but to be able to say that I made that and I decreased rear end collisions, I decreased accidents, I saved lives, I saved injuries, and saved time and money... all sorts of things add up," he says. "That would be amazing. And it's possible." **gt**

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Taking a 'Brake'

Ever been in a predicament where you had to slam on your brakes? Local Peter Livingston has created something called the Progressive Brake Light System to help you in a pinch. | **8**