Hi-Viz Bike

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Hi -Viz Bike is a safety system for bikes. The core of the system is a line drawn on the road showing drivers the legal 1m safety distance. This is backed up by a visual alert, actively warning drivers they are getting too close. Hi-Viz is modular with a central microcontroller controlling all aspects of its operation. Indicators have been added to the bike, many other features can be added, such as automatic signaling using GPS at a later stage. The driving motivation behind the project is that cycling in Australia is dangerous and there are laws requiring cars to stay 1m away from bikes. However, drivers say they cannot judge the distance and the police say they also cannot judge the distance to enforce the rule. The device has three main elements, the first being a laser-drawn ellipse. The laser line works by reflecting a laser off an angled rotating mirror (driven by a motor on the same circuit as the laser) to draw the ellipse on the ground. The indicators feature lights at all corners of the bike, and are controlled by two toggleable buttons (which flash when active). The distance warning sensor uses an infrared distance sensor to tell how far away cars are, with an 8x8 LED screen providing the warning. The screen flashes for 1 second, and then turns off for 0-1s when the car is between 1-2m away. When the car is beyond 2m, it turns off, and when closer than 1m, it stays solidly on. All components are controlled by a microcontroller. The system is powered by a rechargeable 2600mAh battery to reduce weight, which can provide power for at least 4 hours.

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