

# LEMELSON-MIT

Celebrating invention, inspiring youth



**Josh Siegel, MIT (Cambridge, MA)**

**\$15,000 Lemelson-MIT “Drive it!” Graduate Winner**

*Connecting “Hidden” Vehicle Data with a Cloud-based Platform to Create Powerful and Transformative Applications*



**The Challenge:** When one purchases a car today, what you see is what you get. Adding new features such as internet connected vehicle locking and unlocking and memory seats requires an expensive dealer-installed upgrade (most tinkering or tweaking requires access to dealership diagnostic equipment), or in most cases, purchasing a new car. Big-name car makers with platforms like OnStar are leading the connected car movement; however, their current offerings are expensive, offer limited functionality, and often cannot be retrofitted into older vehicles.

**The Solution:** [CARduino](#), manufactured by CarKnow, is a plug-and-play software and hardware system that enables users to access real-time data from their car’s hundreds of sensors and actuators, connecting this data to a Cloud platform. Users can develop custom transformative applications that work with any car. Seven years in development, CARduino gives anyone the power to plug their car into the internet. The device includes several apps that will work on most cars right out of the box, including: predicting vehicle failures, providing remote control of vehicle functions and crowdsourcing information like traffic data and road conditions. The hardware will be released under an open source license allowing developers to write game-changing applications to improve the driving experience from safety to reliability or comfort and convenience. According to Josh, “With CARduino, vehicle owners can make their car their car.”

**Application and Commercialization:** Balancing open source and commercial viability is challenging. However, according to Josh, this balancing will enable CarKnow to produce the best possible products. The company is using open source to bring CARduino to market early and cost effectively, to address development issues promptly, and to expand its user base quickly. There are four phases of monetization with CARduino: early stage crowdfunded sales, application fees and data subscription revenue, transactional revenue from data partnerships and OEM licensing fees from the integration of the company’s Intellectual Property (IP). Josh hopes that one day, CarKnow technology based off of the CARduino will be sold directly with vehicles in addition to his aftermarket product.