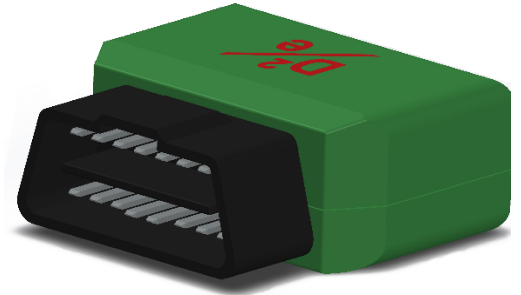


DuxBox™



Revolutionize the operation of your fleet safety department using DuxBox™ and DuxApp™. Focus your driver training efforts on the drivers who need it. Detect incidences of fatigued, distracted driving and near-miss collisions. Take remedial steps before an actual collision occurs, reducing losses and saving lives.

According to the National Safety Council over 42,000 lives are lost annually in road collisions resulting in over \$470 Billion in lossesⁱ. Fleets of large, 18-wheeler trucks alone are responsible for over 130,000 injuriesⁱⁱ. 77-90% of collisions are attributed to driver error. These numbers suggest that increased driver training and practice aimed at anticipating varying driving conditions, will save lives. Drive Square, Inc. has designed, developed, and successfully used driving simulators for driver training for over 20 years.

However, mandatory annual driving safety training for every driver in a fleet is not economically viable for many businesses. Consequently, fleet safety departments switch to initial driver training upon hire followed by remedial driver training when the driver has been involved in an accident.

DuxBox™ is a simple, low-cost non-intrusive in-vehicle sensor-recorder. Unlike other devices on the market the solution does not use video/audio monitoring and never distracts the driver. Using DuxBox™ sensors and the DuxApp™ allows fleet safety managers to monitor the driving behavior of the drivers in near-real time and see analytic insights on driving behavior of individual drivers or the fleet over time overlaid on their route maps. DuxApp™ provides recommendations on remedial training and identify hot spots along the routes where adverse events are likely to occur. These insights and recommendations can help with both operational and long-term planning.

DuxBox™ is a simple “Black box recorder”- type device that collects GPS data and vehicle acceleration / adverse event data. DuxApp™ then fuses this data with other relevant data sources and gives fleet safety management a view into the safety habits of its drivers.

Wi-Fi connectivity allows for the automatic upload of data when the vehicle returns to the garage or otherwise has internet connectivity. Using opportunistic data upload process makes it possible to operate DuxBox™ without on-going charges to mobile data connectivity provider.

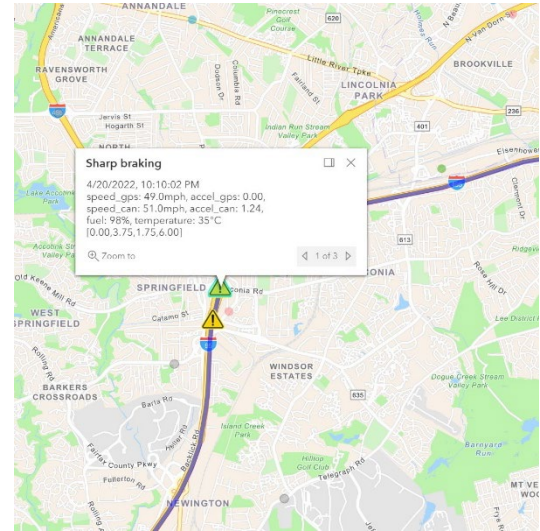
By combining the device data with the intersections mapping, historic NHTSA crash, weather, and other data, we flag adverse events and “near-miss” events and develop recommendations for driver improvement. Such recommendations might include a choice of specific driving-simulator-based driving scenarios that can be indicated for the driver. Driver trainers can run driver remediation training using Drive Square Driving Simulator or take any other personnel action as appropriate.

DuxApp™

Currently DuxApp™ is a serverless application running on AWS cloud.

Every corporate fleet operator has their individually built apps created to comply with corporate safety, security, privacy, and data governance policies. DuxApp™ safety scoring functionality is easily integrated with customer’s existing ERP, logistics, trucking, and fleet management applications.

DuxApp™ comprises IoT Core, Timestream database for data collection, a Lambda function for data processing and driver scoring, DynamoDB database for storage of driver risk scoring, a RESTful Gateway and Amplify-based website for access and visualization of driver risk scores by the safety managers. DuxApp™ is currently using ArcGIS/ESRI mapping system and can display a statistical crash data from the NHTSA’s FARS database.



Technical Specifications

Dimensions	
Wi-Fi	2.4GHz dual-mode IEEE 802.11 b/g/n-compliant
Power	<ul style="list-style-type: none"> • 12V DC via OBD2 connector • 5V DC via USB connector • Built-in rechargeable 150 mAh Li-Po battery with power management
Vehicle interface, CAN Bus	<ul style="list-style-type: none"> • OBD2 Connector, 16-pin, rectangular • SAE J1939, 9-pin round connector via an adapter cable
GPS	<ul style="list-style-type: none"> • GNSS, 22 satellites, 66-channel, sensitivity -165 dBm
6DOF Event Tracking	<ul style="list-style-type: none"> • Accelerometer + gyroscope sensor fusion

D2 Engineering
5606-B General Washington Dr.
Alexandria, VA 22312
sales@dux.eco | 1-877-224-7708 ext. 2

ⁱ NSC: <https://injuryfacts.nsc.org/motor-vehicle/overview/introduction/>

ⁱⁱ FMCSA: <https://www.fmcsa.dot.gov/safety/data-and-statistics/large-truck-and-bus-crash-facts>