



**\*\*\*MEDIA ADVISORY FOR SEPTEMBER 28<sup>th</sup> EVENT\*\*\***

## **Nevada to Issue First-Ever Autonomous Vehicle Restricted Driver's License to Quadriplegic Former Racecar Driver Sam Schmidt**

***Official License Ceremony will Showcase Schmidt Driving the Arrow Electronics Semi-Autonomous Car***

**Las Vegas** – The State of Nevada will issue the nation's first autonomous vehicle restricted driver's license on Wednesday, September 28 to Sam Schmidt, a Nevada resident and former Indy Racing League driver who has been paralyzed from the neck down since a racing accident in 2000.

Schmidt is able to drive a modified Corvette using only the motions of his head, his breath and voice commands. [Arrow Electronics](#) built the [semi-autonomous vehicle](#) for him in 2014 to demonstrate the power technology has to improve lives.

The Nevada DMV has been working with Schmidt and Arrow since 2015 to enhance the state's regulations and allow him to legally drive the semi-autonomous car on Nevada public roads under restricted conditions. Nevada is leading the nation in promoting autonomous and semi-autonomous vehicle technologies that can bring mobility and independence to people with physical disabilities, including our wounded warriors.

**WHAT:** Nevada issues the nation's first-ever autonomous vehicle restricted license to quadriplegic Sam Schmidt; Schmidt showcases his skills behind the wheel of the Arrow Semi-Autonomous Motorcar (SAM Car)

**WHO:** *Sam Schmidt*, former Indy League Racing driver and current IndyCar team owner  
*Mark Hutchison*, Nevada Lt. Governor  
*Mike Long*, Arrow Electronics Chairman and CEO  
*Steve Hill*, Director, Governor's Office of Economic Development  
*Zachary Miles*, UNLV Associate VP for Economic Development  
The Arrow engineering team that built the semi-autonomous SAM Car  
Nevada regulatory officials  
The Schmidt family

**WHERE:** Exotics Racing  
7065 Speedway Blvd, Las Vegas, NV 89115

**WHEN:** **10 a.m. – 12:30 p.m.**  
**Wednesday, September 28, 2016**

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**Schedule:**

- 10 a.m. – State officials and Arrow CEO deliver brief remarks
- 10:45 a.m. – Lt. Gov. Hutchison officially presents license to Schmidt (photo opp)
- 11:05 a.m. – Q&A with Schmidt, government and regulatory officials, and Arrow Electronics engineers
- 11:45 a.m. – Schmidt showcases his driving skills on a short public roadway near Exotics Racing—the drive will be live-streamed
- 12:15 p.m. -- One-on-one interview opportunities

**Members of the news media are strongly encouraged to RSVP:**

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# SAM 3.0

Arrow Electronics developed a semi-autonomous motorcar (SAM) for quadriplegic former racecar driver Sam Schmidt, who has been paralyzed and unable to use his arms and legs since a racing accident in 2000. The SAM project's objectives are not to transfer control of a vehicle to technology, but rather to enable disabled drivers to enjoy the driving experience by leveraging the power of technology.

## 1 Headset

The driver wears a headset equipped with motion-tracking sensors that are similar to the green screen motion capture technology used in Hollywood.

A sip-and-puff device attached to the headset enables the driver to accelerate and brake the car by inhaling in and out.

Sensors inside the tube send information to the sip-and-puff computer, which translates the data input motion command for the car.

## 2 The Internet of Things

The car is equipped with custom IoT capabilities, developed on the Arrow Connect IoT platform, that enable live streaming and replay of telemetry, driver biometrics, environmental conditions and driver POV video.

A custom engineering dashboard allows the team to quickly pinpoint and correct issues in real-time.

## 3 Infrared cameras

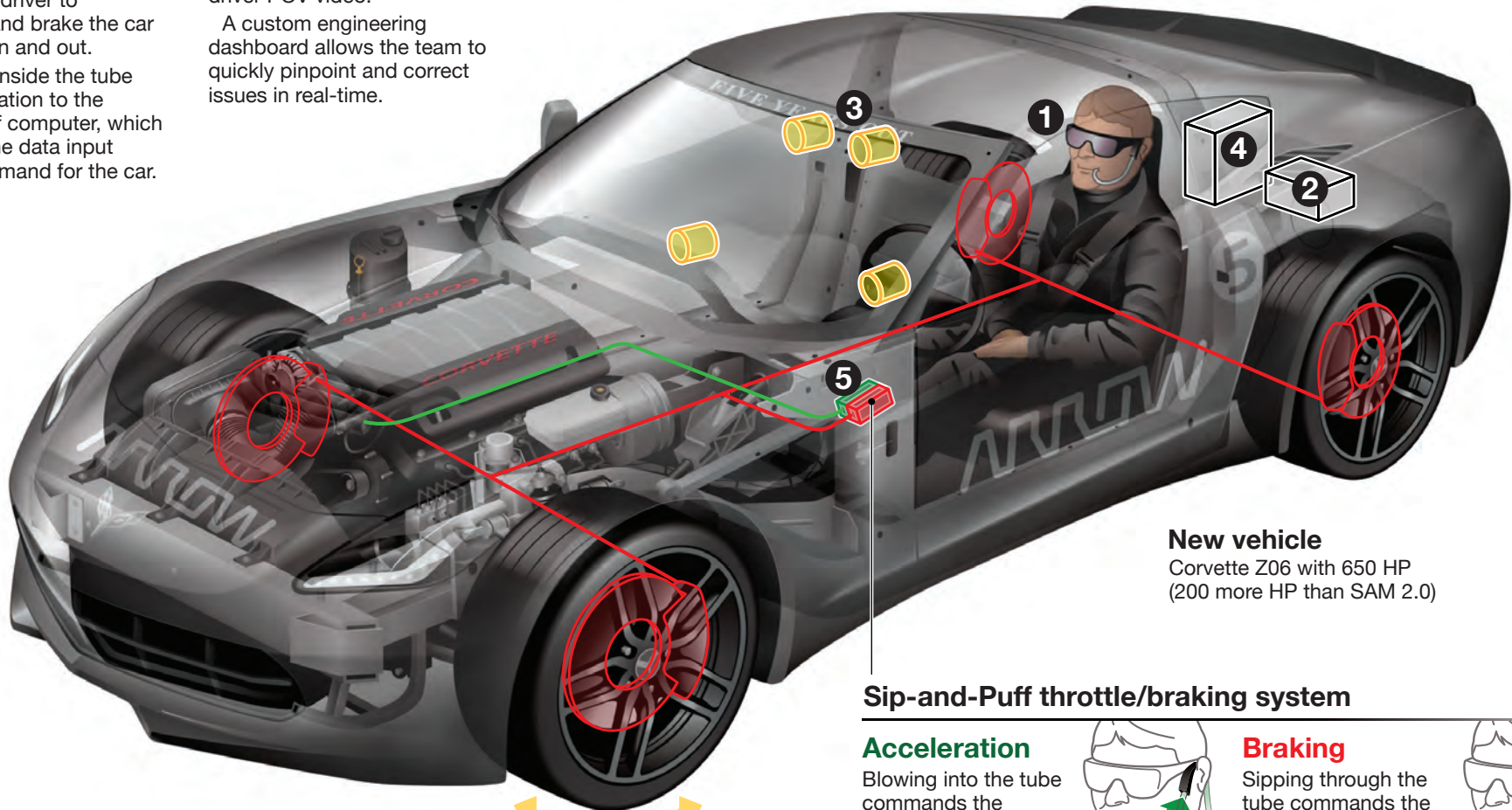
An off-the-shelf 4-camera array on the car's dashboard tracks the driver's head movements within a fraction of a degree via motion-tracking sensors embedded in the headset.

## 4 Main guidance computer

A human-to-machine interface translates sensor data from the driver's head motions into steering commands for the car.

## 5 Drive-by-Wire System

Modified off-the-shelf electric motors under the wheel take data from the sip-and-puff and main guidance computers to control steering and braking—one motor controls the gas and braking, and a second motor controls steering.



### New vehicle

Corvette Z06 with 650 HP  
(200 more HP than SAM 2.0)

### Sip-and-Puff throttle/braking system

#### Acceleration

Blowing into the tube commands the Sip-and-Puff computer to accelerate.



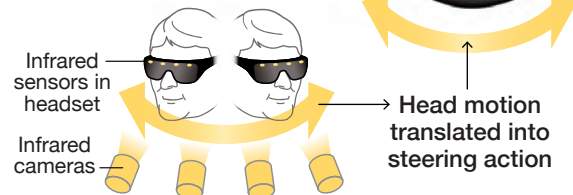
#### Braking

Sipping through the tube commands the Sip-and-Puff computer to brake.



### Steering integration

Infrared cameras follow the movement of the headset sensors, this motion is translated into steering action.



**ARROW**  
Five Years Out