Human-powered speedbike in Nevada challenge breaks record

September 19 2015, by Nancy Owano

The AeroVelo Eta, presented by VisualUnity, is a speedbike making news this week. Eta's makers have been working toward a dream of seeing their Eta break the speed record. Fans saw it last year at the

World Human Powered Speed Challenge in Battle Mountain, Nevada. The team placed third.

That made the Ontario, Canada-based AeroVelo team quite determined to do better for its next challenge, on one of the longest straightest roads in the world. In short, they have wanted to break the speed record.

They have. Against the current record, which was standing at 83.13 mph, they topped that on Thursday. AeroVelo founder Todd Reichert, who has a PhD in aerospace engineering from the University of Toronto, set a new record of 85.71 mph in the AeroVelo's Eta.

"Reichart and his team at AeroVelo engineering have had this very record in their sights for some time," said Nick Lavars in *Gizmag*. He and his colleagues are trying, in general, "to push the limits of pedal-powered motion," as Lavars put it.

"Our current bike, "Eta" is the fastest bike we've made yet," said the team on their site, "and if it breaks the record this year, will become the fastest human powered vehicle on earth."

Eta has an aerodynamic shell. That gives it 100 times less drag then a modern car. According to *Design Engineering*, this is a lightweight carbon fiber frame surrounded by a carbon-honeycomb sandwich shell which can reduce the speedbike's drag to 100 times less than a modern car.

Cyclists from around the world began to gather on State Route 305 outside of Battle Mountain, Nevada, in this year's attempt to break the human-powered land speed record.

The site is considered one of the best road surfaces in the world for human-powered vehicle challenges. "The 4,619ft (1,408m) altitude road

allows riders an acceleration zone of over 4 miles, enabling them to reach their maximum velocity before being timed over a 200 meter distance," according to the International Human Powered Vehicle Association.

Lavars in *Gizmag* referred to it as an "enclosed recumbent bicycle," meaning it is a bicycle that places the rider in a [literally] laid-back reclining position.

Lavars described what happens on the road: "The pilot sits in the recumbent position, with their legs out in front of them, in an enclosed capsule crafted with aerodynamics as a driving principle. Using a camera mounted to the top of the vehicle and a video monitor to see ahead, Eta was expected to offer around a one percent improvement on performance compared to its predecessor, according to the team's computer simulations."

Sean O'Kane offered his description of the Eta in *The Verge*: "The speedbike is a completely enclosed, bullet-shaped vehicle that forces the pilot to lean back almost completely horizontal. A combination of weight, aerodynamics, and sheer physical endurance allows the bike to reach such ludicrous speeds. It's like the fastest human hamster wheel you'll ever see."

Aside from the visual entertainment of seeing a bullet-like structure with a man lying underneath pedaling, what is the point? The company sees it quite clearly.

The company likes engineering challenges and this is an example of their pursuit of extreme efficiency.

"Advances are made by pushing limits. We are limited only by the power output of the human body. This forces us to approach each challenge

from the perspective of conserving energy and creating the most efficient vehicle possible."

More information: www.ihpva.org/home/