

IEEE Brainwaves

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IEEE Brainwaves Feature Events :

Seminar on Smart Navigation by Dhaval Shroff from Tesla



About the Seminar: Smart Navigation seems to be at the cutting edge of the automotive industry. A goal that many automotive companies are pursuing. The Speaker: Seminar was conducted by Mr. **Dhaval Shroff**, an alumnus of DJ Sanghvi College. He completed his Masters in Carnegie Mellon University(CMU). Dhaval works in the R&D department of autopilot, Tesla. Seminar was open to students of all departments. The Experience: Mr. Shroff shared his experiences and insights of working in Tesla. He shared many anecdotes and technical insights of the various technologies he has worked. There was a keen interest in students to know about Tesla cars and Smart Navigation System. Q and A session was thus marked the end of seminar. The seminar was attended by 250 students from all departments.

IEEE Spectrum Article :

For Racing Glory, Students Built a Mountain-Busting Electric Motorcycle

Ohio State engineers optimized their bike for one thing: to climb Pikes Peak faster than any other bike, electric or gasoline powered

An hour before the qualifying round is no time to blow out the power inverter in your electric racing motorcycle.

It's a Friday morning in June and easily the worst day of the year for a score of engineering students from Ohio State University, in Columbus. Months of painstaking labor have gone into their all-electric cycle, the Buckeye Current RW-3, to handle one race and one race only: the Pikes Peak International Hill Climb, a motorsports race up Colorado's iconic mountain. It towers in the near distance; the students are at rock bottom.

In the past week, they've overcome adversities that include a burned-out noise maker (to alert pedestrians to the cycle's silent approach), a wobbly seat, a cooling-system snafu, and a run-in or three with the powers that be. And now, a dead power inverter.

And yet, if panic is breaking out, there's no sign of it. "This, too, is fun," insists team leader Aaron Bonnell-Kangas, speaking somewhat less animatedly than he usually does.

Punching numbers on his smartphone, he tries to raise somebody—anybody—at Tritium, maker of the inverter, which turns a battery's direct current into the alternating kind that the motor requires. Alas, it's the wee hours of a Saturday morning at Tritium's headquarters, outside Brisbane, Australia.

So everyone jumps. Off comes the bike's seat, out come its electronic guts, on go the probes of the circuit testers. But the inverter's troubles remain obscure. This isn't a mechanical quirk in your father's Ducati; this is a bug hiding somewhere among scores of chips and thousands of lines of code.

"It's talking to us, but it's not sending a signal to the motor," says Polina Brodsky, a mechanical engineering student. "The computer is booting up, but it's not doing anything."

With just minutes left before the qualifying round is set to begin, Rob "The Bullet" Barber, the team's pro driver, improvises a plan B. He hops onto a motorcycle belonging to one of the students—a gasoline-powered Kawasaki—and makes for the starting line. "Hope they [the race officials] count it, but it isn't the team's bike," he frets.

The officials do count the bike. So now, all the team has to do is repair the inverter on the RW-3, run tests on a local track, charge each of the bike's 938 A123 lithium-ion cells to capacity, roll the bike to the base of the mountain, and run the race. They've got 40 hours.



Student project though it is, the Buckeye Current is regarded as a serious contender. The team has gone far to optimize the bike to put out crazy levels of power, something it has to do for only the 10 minutes it should take to round the course's 156 hairpin turns while skirting a skid into an abyss. Power is everything; energy storage, nothing. If the bike's batteries die at the summit, the students will happily walk it down.

Sheer performance is no mere ornamental attribute but rather the heart of the surging appeal of the electric vehicle—the feature that shattered the golf-cart image. From zero to fabulous in 3 seconds, promises the dual-motor Ludicrous Speed mode in the Tesla Model S P90D. And, like the Buckeye Current, the Tesla does it all without a gearbox.

“This motorcycle is our idea of the perfect bike: powerful and nimble,” says Bonnell-Kangas, a grad student in electrical engineering. “We want to go up Pikes Peak ahead of the gasoline bike. We want to be the best.”

The race plays to the strengths of an electric drivetrain. First, an electric power plant offers instant-on torque, and that comes in handy on the course's many switchbacks.

Continue Reading at

<https://spectrum.ieee.org/transportation/advanced-cars/for-racing-glory-students-built-a-mountainbusting-electric-motorcycle>