E211 Universidade Estadual de Campinas

Unicamp E-Racing

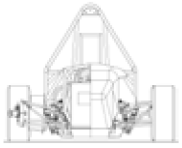
Unicamp E-Racing is a young Formula SAE Electric team from Brazil, and this is the second international competition in our history.

Our team members come from all science disciplines including mechanical and electrical engineering, computer science and also physics and arts students.

Despite our short history, we have been very successful. In 2012 we won the Formula SAE Electric Brazil and in 2013 we achieved our second national title and our first international championship: Formula SAE Electric 2013 in Lincoln, Nebraska. In that occasion, the team has broken the world record score, achieving 985 points of the 1000 that are possible.

For 2014, Unicamp E-Racing team focused on weight reduction and reliability. To meet these goals we used carbon fiber, kevlar and aluminum components and also reduced from 13" to 10" wheels, for example. The result is a much smaller, lightweight, reliable and fast car.

We would like to thank our university, UNICAMP, and also all our sponsors for the great support they've given to us.

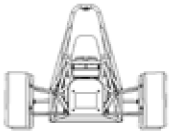


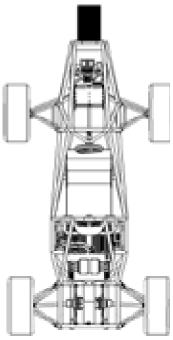
BRAKE : Stainless steel rotors, Wilwood PS1 calipers and Wilwood master cylinders
COOLING : Oil cooled, single aluminum radiator with fans and electric pump
DRIVE : Direct drive with internal differential
ELECTRONICS : ETAS data acquisition system, WiFi telemetry
EMCAC : LiFePO4 / 5.6 kWh
FR/RR TRACK : 1200 / 1180 mm
FRAME : Full tubular space frame
MATERIAL : AISI 1020 Steel
MAXMOTORRPM : 2000
MAXSYSVOLT : 297 V
MOTORCNTRLR : Sevcon Gen4 Size8
MOTORTYP : YASA-750 Axial Flux Permanent Magnet Synchronous Motor
NMLMM : 1 / Rear / 100 kW
OLWH : 2504mm / 1386mm / 1126mm
SUSPENSION : Double unequal length A-Arm, pull rod actuated spring and damper
TIRE : 18 x 6 10 R25B Hoosier
TRANSRATION : 1:1
WEIGHT : 619.5 lbs
WHEELBASE : 1553 mm

E213 University of Calif - Davis

UC Davis Formula Racing

UC Davis Formula Racing's first electric formula car is designed as a capable and flexible platform for powertrain innovation through enabling research and implementation of an advanced torque vectoring and predictive traction control system. A National Instruments RIO device is used to implement the control and sensory system. Sensors include wheel speed, acceleration and yaw, steering angle, motor current, tractive voltage and battery current. Maximum torque vectoring effectiveness is realized through the application of a fully left/right independent electric powertrain. Each permanent-magnet synchronous Z-Force motor produces a peak of 40 kW and 68 ft-lbs of torque. Electrical energy is stored in a 6kWh pack composed of high-power Lilon-NCM pouch format cells. Energy is recaptured using regenerative deceleration and the accumulator is one-hour quick charging capable.





BRAKE : Hydraulic Disk
COOLING : Passive
DRIVE : Electric Independent Direct
ELECTRONICS : Custom with NI sbRIO Controller
EMCAC : NMC Cathode Lilon 6kWh
FR/RR TRACK : 1288/1204 mm
FRAME : Space Frame
MATERIAL : 4130 CrMo, Unobtanium
MAXMOTORRPM : 6500
MAXSYSVOLT : 116
MOTORCNTRLR : Sevcon Gen4
MOTORTYP : Z-Force Permanent Magnet Synchronous
NMLMM : 2x Rear 40 kW Each
OLWH : 3064 mm, 1525 mm, 774 mm
SUSPENSION : Unequal Length Double A-arm
TIRE : 13" Hoosier R25B
TRANSRATION : 1:4.54
WEIGHT : 750 lbs with driver
WHEELBASE : 1746mm / 68.7 in