



Team H₂politO

ready to be different

About us

From **30** to more than **60** students
coming from all engineering courses

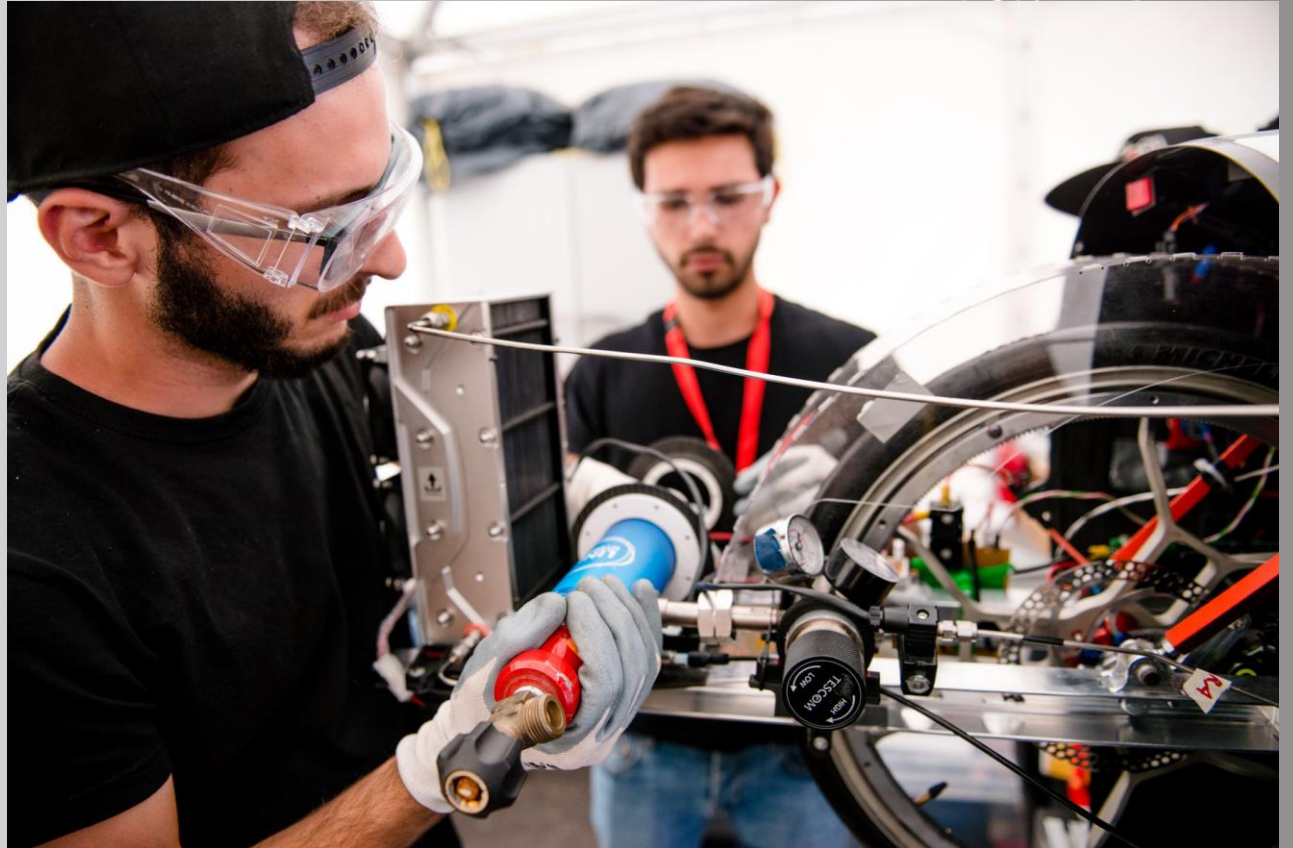
International competition every year

More than **20** events every year



The vision: a new generation of engineers

- Build technical skills
- Time and cost managing skills
- System integration
- Problem solving
- Teamwork



12 years of innovation



Shell Eco-marathon (SEM)

International competition for **low-energy consumption** vehicles:
an educational project which matches the values of **sustainable development** with driving a
vehicle that uses the **least possible energy**.

2 categories:

Urban concept

Prototype



11 laps, 15 km in 39 minutes with an average speed of 25 km/h

More than **200** european teams, almost **2000** students, one single goal.

JUNO

One seater urban Concept

ICE 50 cc

Fuel: gasoline

Chassis: carbon fiber monocoque

Total mass: 130 kg

Max speed: 50 km/h (limited)



IDRA KRONOS

One seater prototype

0,5 kW customized Hydrogen fuel cell

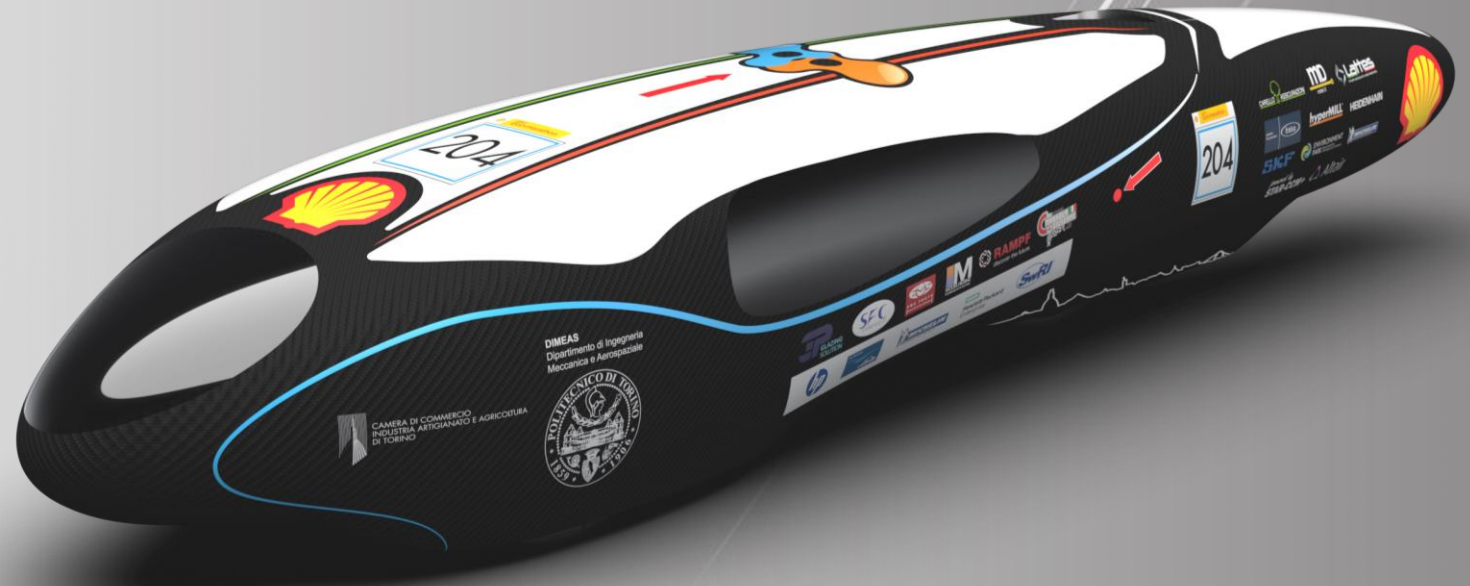
0,25 kW brushed DC motor

Carbon fiber monocoque

Front steering wheels

Total mass: 42 kg

Max speed: 35 km/h (limited)



Our SEM results



1st place hydrogen category **Shell Eco-marathon Netherlands 2019** – 1027 km/m³ (3129 km/L)
2nd place hydrogen category **Shell Eco-marathon Europe 2019** – 1058 km/m³ (3445 km/L)



Urban concept category **Shell Eco-marathon Europe 2019** – 197 km/L

OFF-TRACK AWARDS

3 Design Awards – IDRAkronos (2016) , XAM (2011) , IDRAID (2010)
5 Communication Awards – 2017, 2014, 2012, 2010, 2009



Our resources

HUMAN RESOURCES

12 Managers

32 Members

6 Advisors

50 total team members

ECONOMIC & TECHNICAL RESOURCES

Politecnico di Torino 70%

SPONSORS+ PARTNERS 30%



Our numbers

71.748

Visits on Website

11.330

Facebook Fans

16815

Youtube Visualizations

262

**National and International
Events**



180

Engineers

457

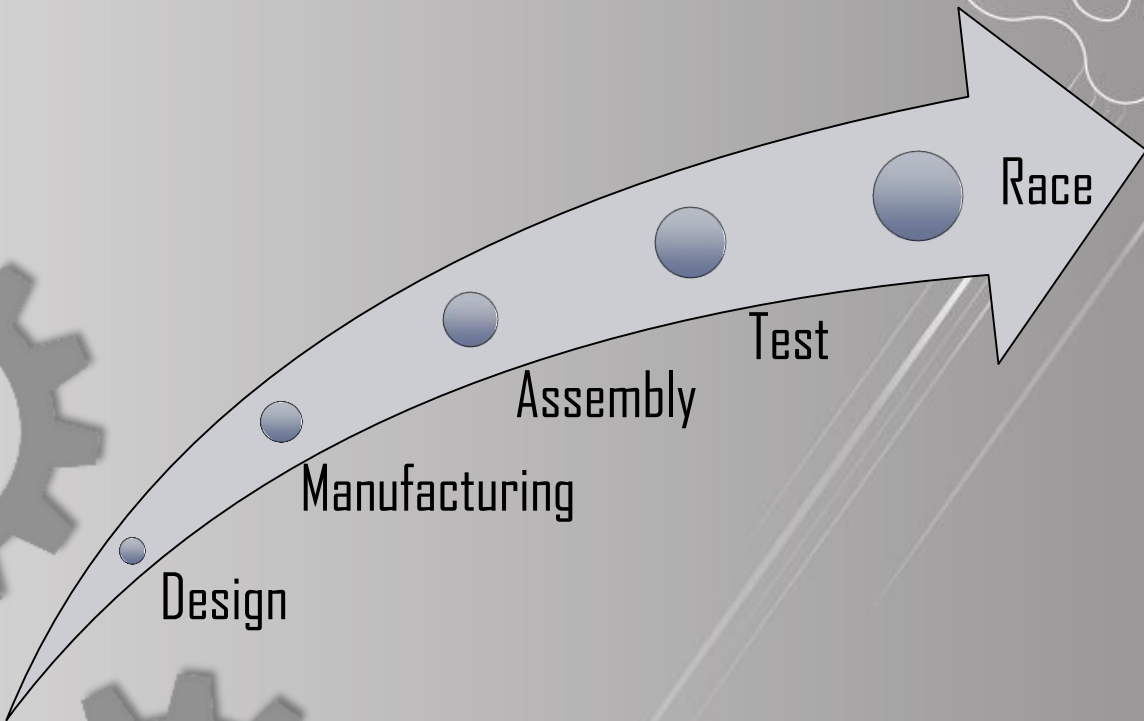
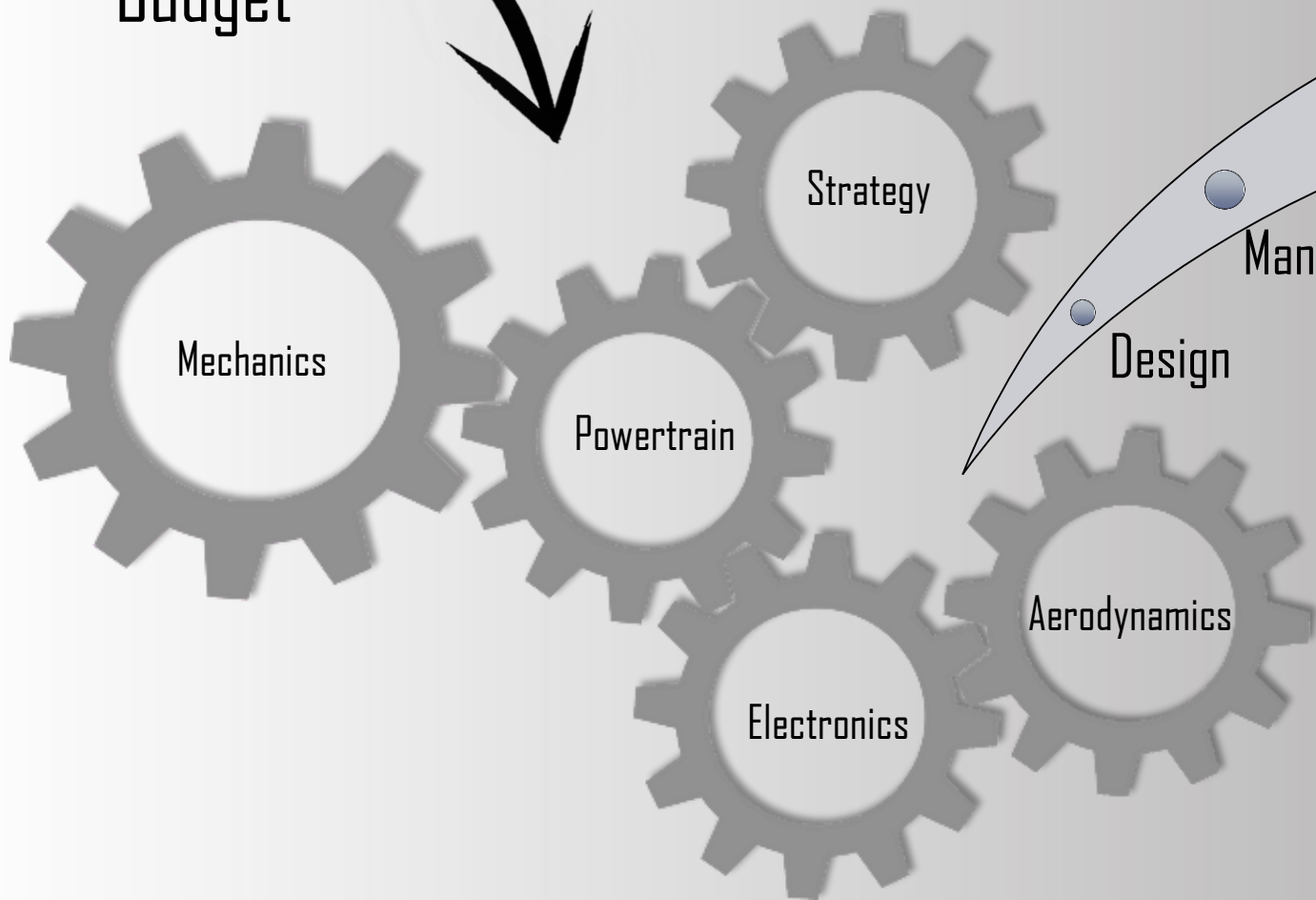
**Team Students
member**

TECHNICAL AREAS



Work approach

Track
Rules
Budget



Our organization

Innovative path

- Teamwork**
- Organization & Rules definition**
- Problem solving**
- Cost analysis**
- Project management**
- Sponsorship**
- Communication**
- Team Image**



Team



Competition



- System integration**
- Mechatronic & Electronic**
- Economy**
- Alternative fuel**
- Aerodynamics efficiency**
- Mass reduction**
- New materials**
- Testing**
- Design**
- Vehicle dynamics**

Didactic path



Team structure



Faculty Advisor

M. Carello



**IDRAkronos
Vehicle Manager**

R. Bussu



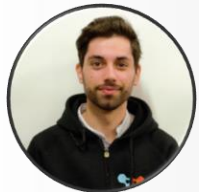
Team Manager

M. F. Ardemagni



**JUNO
Vehicle Manager**

F. Burdisso



**Mechanics
IDRAkronos**

U. Iannuzzo



Fuel Cell

L. Di Napoli
L. Longega



**Electronics
JUNO**

D. Argentiero



**Mechanics
JUNO**

M. Cavallo



**Dynamics &
Strategy**

E. Ferrari



Aerodynamics

M. Savi



**Electronics
IDRAkronos**

I. B. Serio

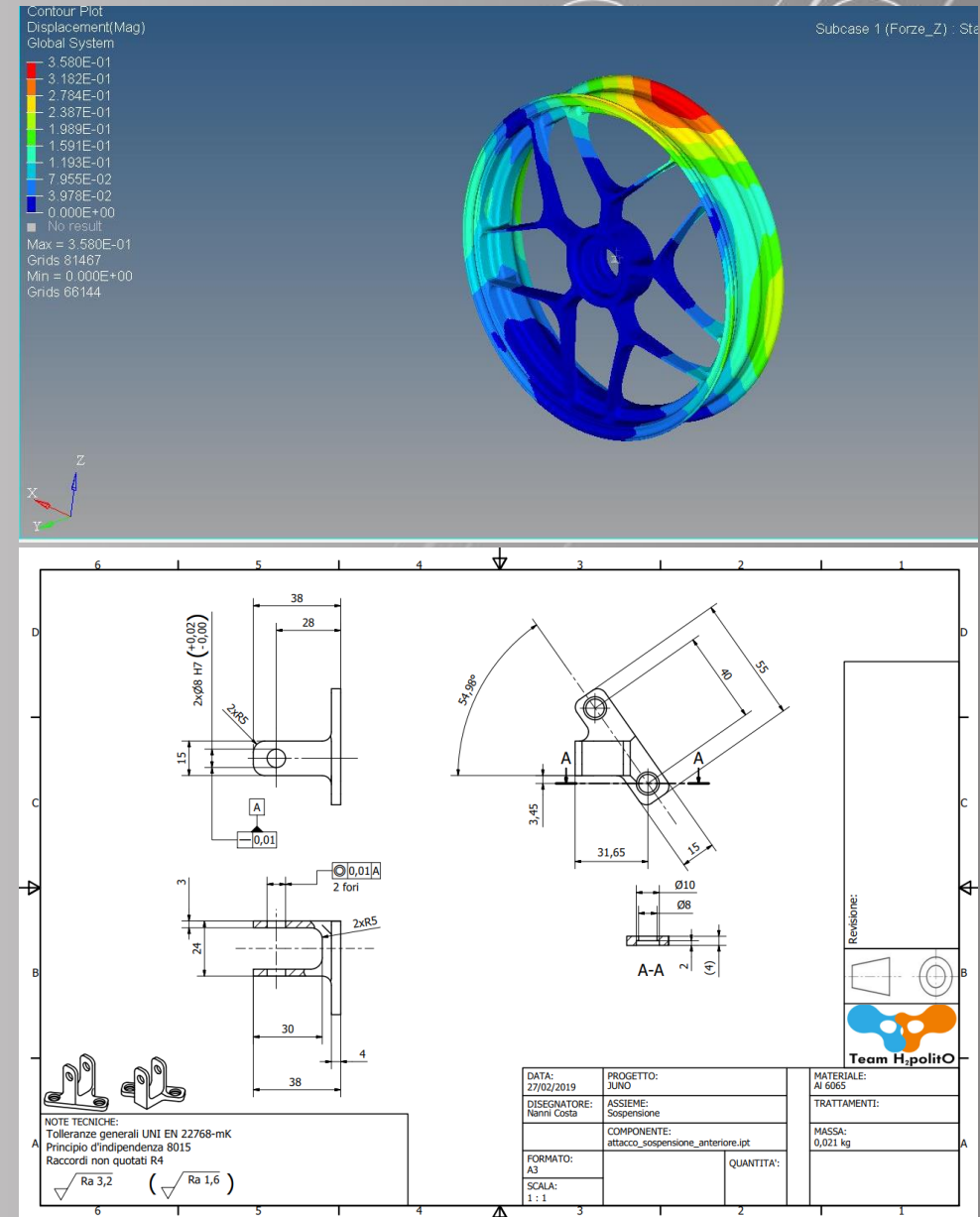


ICE

N. Sottile

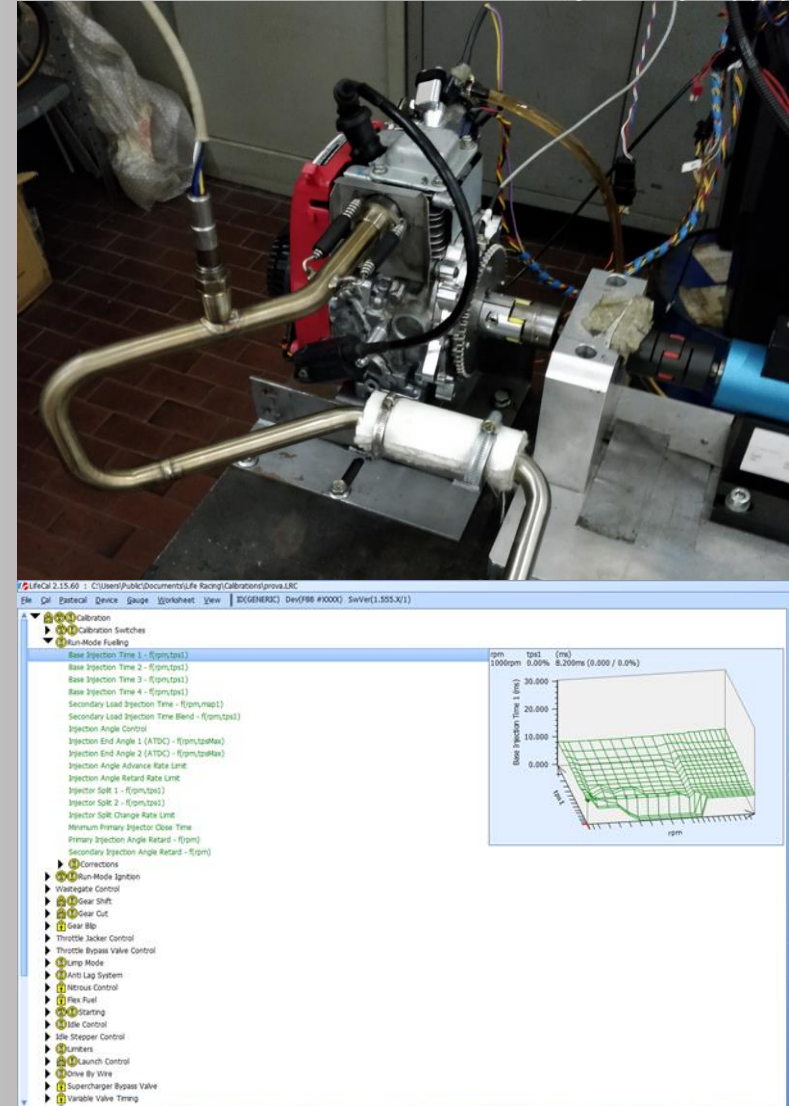
MECHANICS

- COMPONENTS DESIGN AND OPTIMIZATION
- STUDY AND DESIGN A NEW STEERING SYSTEM
- STUDY AND ANALYSIS OF FAULTY COMPONENTS
- COMPONENT ASSEMBLY AND ADJUSTMENT



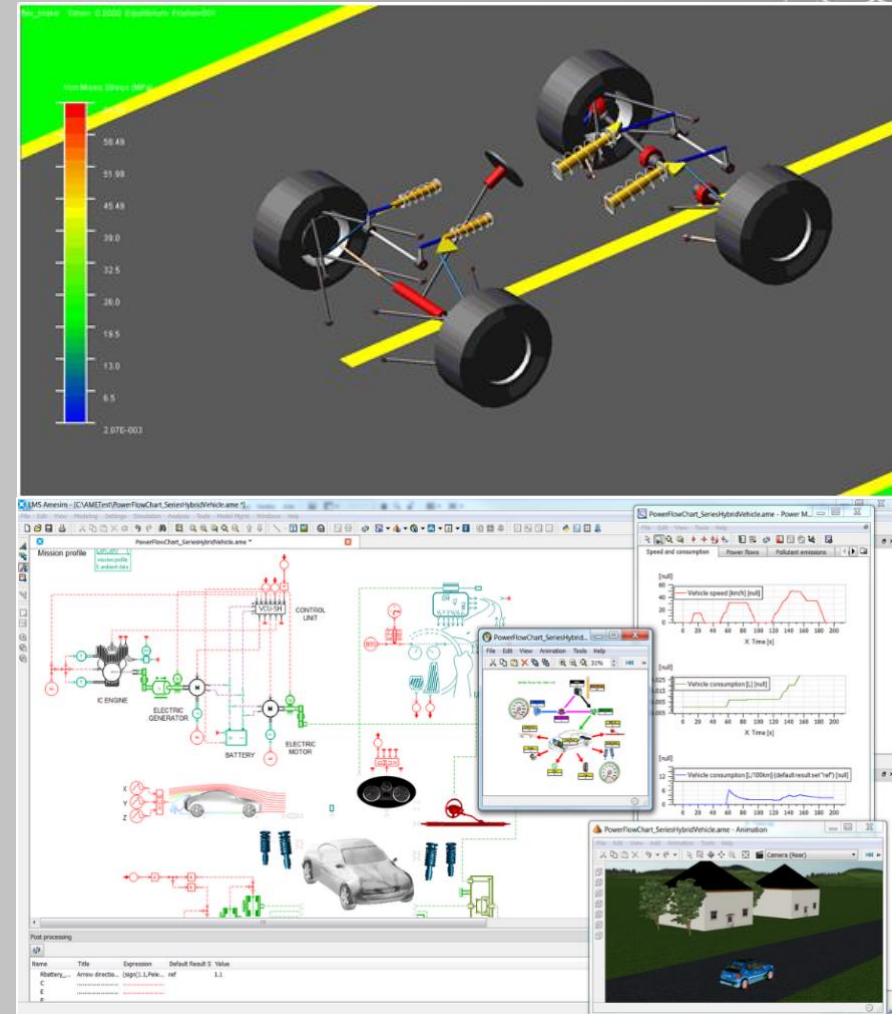
ICE

- BENCH TESTING
- ENGINE CONTROL IMPROVEMENTS
- ENGINE PARTS RE-DESIGN AND OPTIMIZATION
- ENGINE AIR-MIXTURE CALIBRATION
- FULL ENGINE CHARACTERISTIC CURVE DETERMINATION



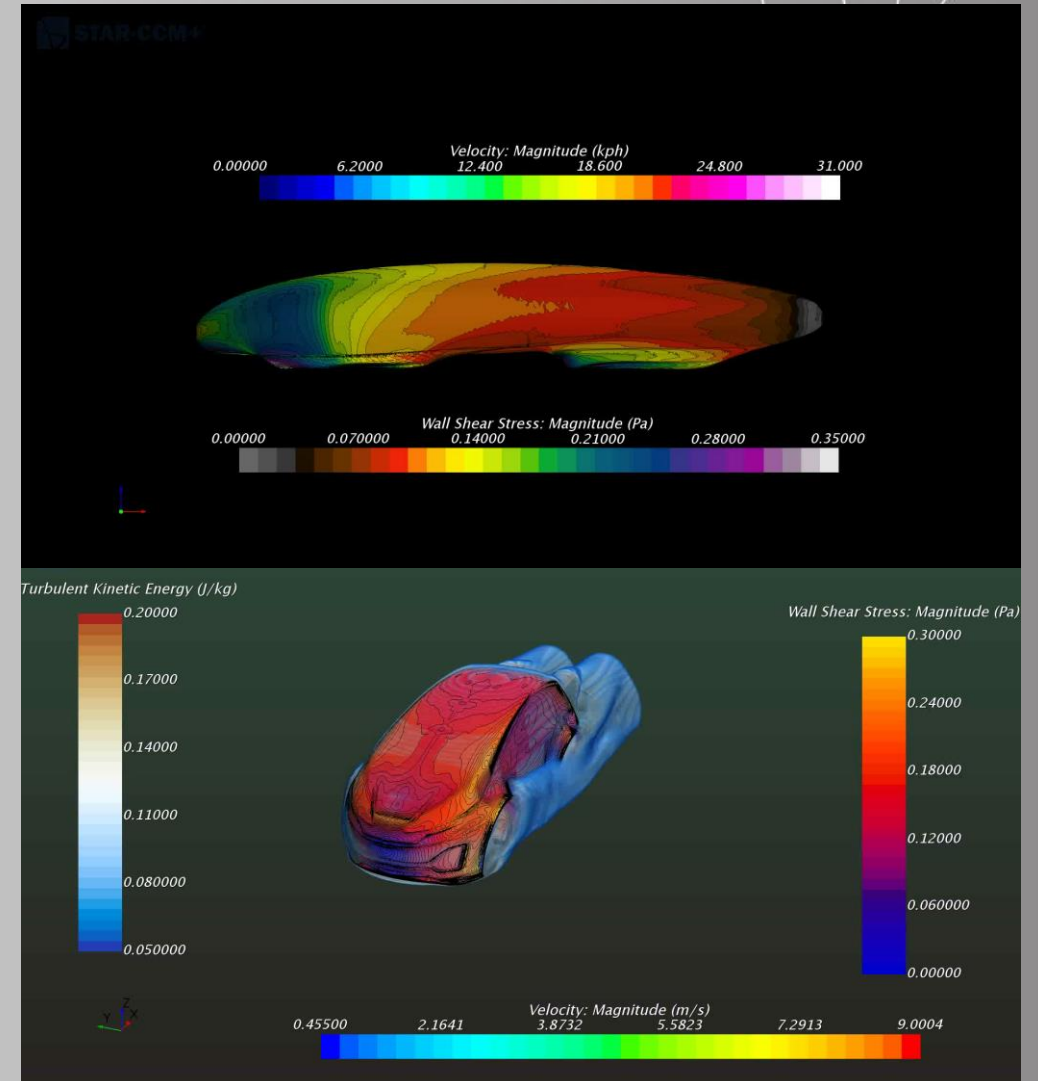
DYNAMICS AND STRATEGY

- SUSPENSION DESIGN AND OPTIMIZATION
- VEHICLE DYNAMIC SIMULATION
- VEHICLE HANDLING EVALUATION
- RACE STRATEGY
- MODEL FOR CONSUMPTION ESTIMATION



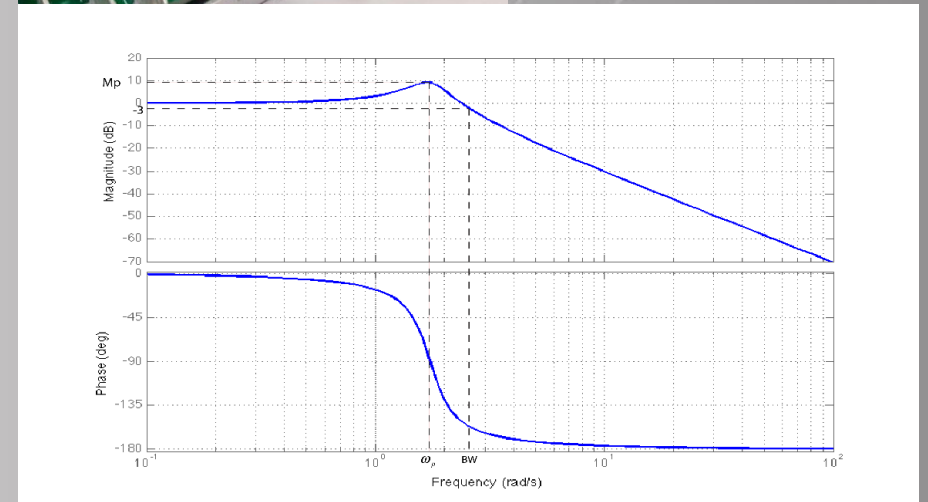
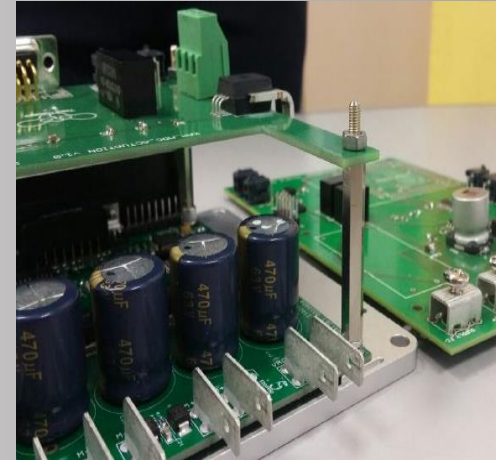
AERODYNAMICS

- APPENDIX DESIGN AND OPTIMIZATION
- CFD ANALYSIS
- SURFACE CAD
- WIND TUNNEL PREPARATION
- MOLD DESIGN



ELECTRONICS

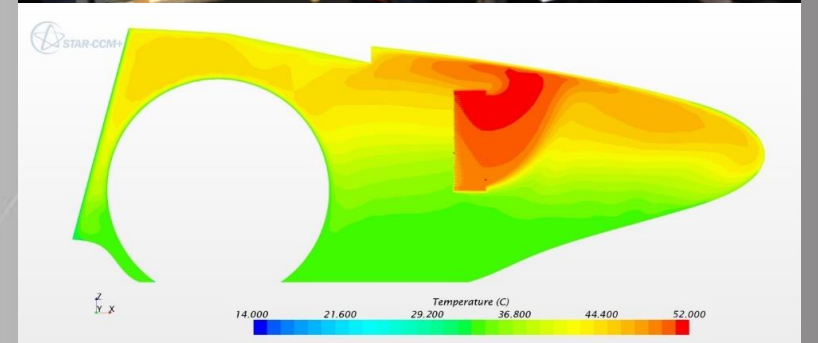
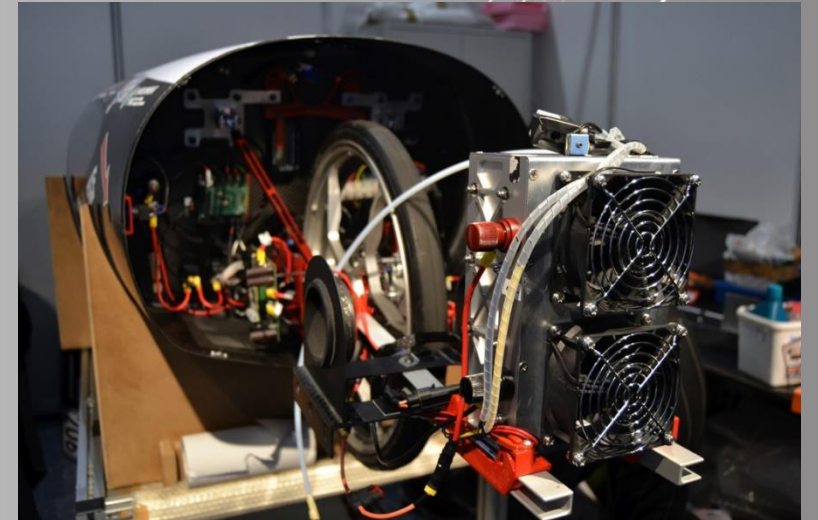
- HARDWARE AND FIRMWARE DESIGN
- AUTOMOTIVE CONTROLLER DESIGN
- AUTONOMOUS DRIVE SYSTEM DESIGN
- MODELLING AND SIMULATION OF DYNAMIC SYSTEM
- ELECTRONIC BOARD AND DESIGN, ASSEMBLY AND TEST



FUEL CELL



- STUDY OF THE OPTIMAL FUNCTIONING PARAMETERS OF FUELL CELL PEM
- CFD MODEL
- STUDY OF HUMIDIFICATION SYSTEM



MANAGEMENT



- SPONSORS MANAGEMENT
- SUPPLIES MANAGEMENT
- TEAM IMAGE MANAGEMENT
- EVENTS MANAGEMENT
- PICTURES AND VIDEOS DESIGN
- WEB AND SOCIAL MEDIA MANAGEMENT

sfera.it **SKF**
Il colpo d'ala di Villar Perosa

SKF e Politecnico di Torino, binomio vincente alla Shell ECO Marathon

Percorrere il maggior numero di km con un litro di benzina; la Shell Eco-Marathon sfida gli studenti di tutto il mondo a creare un mezzo capace di combattere ogni forma di attrito per ottenere il massimo dell'efficienza energetica. Quest'anno la sfida si è svolta al Queen Elizabeth Olympic Park di Londra, dove 200 squadre provenienti da 24 paesi si sono sfidate all'ultimo km. Per la prima volta, sul gradino più alto del podio è salito un team italiano, l'H2politO del Politecnico di Torino, che con IDRAkronos ha percorso l'equivalente di 2.188 km con un litro di benzina. Grande soddisfazione per la responsabile Massimiliana Carello, docente di Chassis Design al Dipartimento di Ingegneria Meccanica e Aerospaziale dell'ateneo torinese, che insieme ai suoi studenti ha vinto anche il Design Award della giuria. Alla vittoria del team italiano ha partecipato anche l'unità Racing di SKF Italia, che attraverso Laura Baracco, Key Account Manager e Andrea Rifici, Formula 1 Application Engineering Specialist, ha fornito i cuscinetti SKF Energy Efficient E2 montati sui tre mozzoni di IDRAkronos (due anteriori, uno posteriore). Per l'occasione, i cuscinetti SKF sono stati ottimizzati e customizzati con sfere in ceramica, in modo da ridurre al minimo l'attrito al rotolamento e il peso totale, un contributo determinante al successo di IDRAkronos.

Michelin
1 marzo · €

#SEM2017 - Team H2politO: concentrazione e Know-How. Le nostre "molecole da Corsa" fanno i primi test sulla "fuel cell" di #IDRAkronos.

Michelin
31 ottobre 2016 · €

Il Team H2politO è pronto per una nuova avventura. Quella passata, noi ce la ricordiamo così!
E voi, siete pronti a sostenere le nostre "Molecole da Corsa"?

43 mila visualizzazioni
Mi piace Commenta Condividi

63 mila visualizzazioni
Mi piace Commenta Condividi

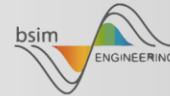


Dipartimento Energia
"Galileo Ferraris"

DIMEAS
Dipartimento di Ingegneria
Meccanica e Aerospaziale



CAMERA DI COMMERCIO
INDUSTRIA ARTIGIANATO E AGRICOLTURA
DI TORINO



Ing. MASSIMILIANA CARELLO

Faculty Advisor

Mobile: +39 3665610939

massimiliana.carello@polito.it

RENZO BUSSU

Vehicle Manager IDRAkronos

Mobile: +39 3311060615

renzobussu@gmail.com



FEDERICO BURDISSO

Vehicle Manager JUNO

Mobile: +39 3315898865

federico.burdisso@gmail.com

MARCO FRANCESCO ARDEMAGNI

Team Manager

Mobile: +39 339 8707115

marcofrancesco.ardemagni@gmail.com



YouTube

www.polito.it/h2polito