

# Universiti Teknologi Malaysia, Team wins Technology Class Award at the South African Solar Challenge 2008.

Competing with their Hydrogen Fuel Cell Powered Motorbike, they reach first the finish line in Pretoria, the capital of South Africa, on 8<sup>th</sup> of October. It was a silent and environmental friendly finish because the motorbike makes no noise and locally no exhaust fumes. As special honor Prize was given by the Malaysia ambassador.

The "South African Solar Challenge 2008" was organized this year for the first time; it is in the longest and most difficult solar challenge on the world. With a distance from over 4000km and a mountain profile from sea level up to 1800 meters. The rally takes place every two years on public roads for 11 days around South Africa. Start and finish is in Pretoria, it pass through Cape Town and Durban before it returns to Pretoria. (like to see on the Map)

Vehicles are divided into 2 categories, solar race cars and "Technology Class"; e.g. UTM-hydrogen fuel cell motorcycle named "*H2Motive*".

The Technology Class is especially for vehicles with environmental friendly fuel and technology. The fuel cell motorcycle is two to three times more efficient than conventional motorbike, with no noise and no pollution.

The *H2Motive* fuel cell motorbike was developed under the leadership of Prof. Dr. Hamdani Saidi. UTM city campus director. The design was done in UTM-KL from German Engineer Jörg Weigl, with his team Inayati, Ettiene Zind, Andreas Büttcher, Roslina, Hairul, Zudi.

The heart of the motorcycle power train is a 7 kilowatt fuel cell system. It produces electricity for the electric motor which drives the back wheel.

A fuel cell makes electricity from Hydrogen gas (H<sub>2</sub>) and Oxygen (O<sub>2</sub>) from the air. The only by product is very pure water (H<sub>2</sub>O) and heat.

Fuel is supplied to the fuel cell from two 25liter 350bar hydrogen pressure vessels, mounted under the rider and pillion rider seat. The range with a full hydrogen tank is 300kilomeeter plus, at the speed of 80 kilometer per hour. The transmission on the back wheel is done with two parallel motors.

The second motor can be added on as "booster motor" for climbing hills easily.

This design gave the advantage of climbing all hills and the special award "Leopard Award - King of the Mountains!"

[www.solarchallenge.org.za](http://www.solarchallenge.org.za)

Contact: Prof. Hamdani or Jörg Weigl, joerg\_weigl@web.de Tel.: +60122952677



Picture 1:

Route of the „South African Solar Challenge 2008“ over 4000 Kilometer 11 days with 9 race days.

(Photo: J.Weigl)



Picture 2:

Jörg Weigl on „Pios fuel cell motorcycle“ at „Karoo“ National Park, South Africa, during the Süd Afrika South African Solar Challenge 2008. (Photo: E.Zind)



Picture 3:

The winning team(from left) H2Motive motorcycle with Etianne Zind, Hairul Izmail, Prof. Hamdani Saidi, Jörg Weigl, Dr. Kamarul, Kristofer Arbeus. (Photo: W.Jordan)



Picture 4.1 to 4.4:

Pios Fuel Cell Motorcycle during the South African Solar Challenge 2008  
- Garden route, Western Cape District (Photos: K.Arbeus)