The 2nd Malaysian Chem-E-Car Competition – MICET E-Car from Universiti Kuala Lumpur Won the National Chem-E-Car Competition

By : Engr. Dr Law Chung Lim, *Grad, IEM.*

On 14 January 2006, Chemical Engineering Technical Division and University Malaya, as the co-organisers, organised the 2nd Malaysian Chem-E-Car Competition in University Malaya. The main sponsor was Shell Malaysia. The competition was officially opened by Prof. Dr Mohamad Rom Tamjis, Dean of Faculty of Engineering, University Malaya.

The modal car competition commenced immediately after the official opening at 9:30am. Nineteen teams, which were from University Malaya (UM), National University of Malaysia (UKM), University Science Malaysia (USM), University Putra Malaysia (UPM), University Technology Malaysia (UTM), University Technology MARA (UiTM), University Kuala Lumpur (UniKL), participated in the competition. The participating teams were Crest, UM-2, UM-3 and Ares Seeker from UM, Initial D, Energien, Fantastic, Sigma Corporation from UKM, Mustang, Thunder and Panther from USM, Impact 6030, Perfect Putra, UPM-3 from UPM, Krastoff and Berennstoff from UiTM, Engineering Technologist Wannabe and MiCet E-Car from UniKL, H2Motive Elegance from UTM.

The competition consisted of two sessions; model car competition and followed by poster presentation competition.

In the model car competition, each car had one attempt in the first and second rounds respectively. Team with its model car recording the nearest distance from the specified end line in either attempt would win the model car competition. Model cars in this competition must be powered by chemical cell, fuel cell, or mechanical thrust from pressurised vessel. Of course, commercialised batteries and fuel cells were not allowed in the competition. Electricity or mechanical thrust that would be used to move the car must be generated from chemical reaction. Prior to the competition, participating teams were told that the model car would have to travel a distance which would be between 15 meters and 25 meters and carry additional load up to 500 ml of water. The exact distance traveled and additional load to be carried by the model would be announced on the day of the competition. From the first announcement until the competition day, each participating team prepared themselves well by deciding the power system, constructing the model car, testing and calibrating the amount of chemical reactant to travel a certain distance and to carry a certain additional load. Besides, each team also had to prepare a poster board that described the model car.

At 9:30 a.m., judges announced that the distance to be traveled by the model car would be 17 meters and additional load to be carried by the model car was 200 ml of water. The competition commenced 15 minutes after the announcemement.

Sequence of the team to compete was decided by IEM Secretariat by random. Each team was given 10 minutes in each round of competition. The first round ended at 11:00 a.m. Second round commenced at 11:15am.

The scores recorded by each team are given in Table 1. The winning team was MICET from University Kuala Lumpur, followed by second place Fantastic from National University of Malaysia (UKM) and third place, UM-3 from University Malaya. MICET recorded 13cm from the end line in the second round, whereas Fantastic and UM-3 recorded 21cm and 23cm respectively in the first round.

Table 1: Scores recorded by participating teams in 2nd Malaysian ChemECar Competition.

Team	Institution	First round	Second round
Sigma Corporation	UKM	203cm	145cm
Perfect Putra	UPM	1147cm	1501cm
Kraftstoff	UiTM	1502cm	Disqualified
Eng. Tech. Wannabes	UniKL	526cm	1596cm
Initial D	UKM	38cm	71cm
Crest	UM	45cm	689cm
Impact 6030	UPM	Forfeited	1700cm
H2Motive Super	UTM	2720cm	1489cm
Energien	UKM	999cm	116cm
UM-2	UM	790cm	709cm
Fantastic	UKM	21cm	159cm
Panther	USM	61cm	1382cm
Brenstoff	UiTM	965cm	1674cm
Mustang	USM	569cm	390cm
Sovi Chem Car	UPM	1700cm	Forfeited
UM-3	UM	23cm	63cm
MICET E-Car	UniKL	224cm	13cm
Thunder	USM	1005cm	1575cm
Ares-Seeker	UM	162cm	41cm

Ten teams, which recorded the best scores in this competition thereby obtained their qualifying ticket to represent Malaysia to compete with other teams from other countries at international level of Chem-E-Car competition. The teams are MICET E-Car (UniKL), Fantastic (UKM), UM-3(UM), Initial D (UKM), and Mustang (USM). Chemical Engineering Tecnical Division of Institution of Engineers Malaysia will notify and invite the teams to participate the International Chem-E-Car competition, which will be held at Kuala Lumpur on 27

August 2006 in conjunction with Asian Pacific Confederation on Chemical Engineering Conference, APPChE 2006.

The model car event ended at 1:00pm. The event adjourned for lunch and resumed at 2:00 p.m. for poster presentation competition.

In the poster presentation, participants were given 10 minutes to present their model car and to describe the propulsion system as well as innovative and creative ideas focusing on areas such as propulsion system safety, environmental issue, efficiency and etc. The team of judges for the poster competition consisted of Engr. Ahmad Nordeen bin Mohd. Salleh, Engr. Chen Yew Seong and Dr Law Chung Lim.

The winning teams in the poster presentation competition were Crest from University Malaya, Mustang from University Science Malaysia and UM-3 from University Malaya.

This competition was indeed a successful event. The participation from universities was encouraging. It is worth to mention that National University of Malaysia (UKM) organised its own ChemECar competition at university level and later sent the best four teams to participate at the national level, 2nd Malaysian ChemECar Competition. UKM was indeed one of the pioneer universities in Malaysia that actively involved in ChemECar Competition. Moral supports given by the supporters from various universities were overwhelming and enthusiastic. It is also worth to mention that USM sent a team of supporters from Parit Buntar to support their team. This event had been reported in Utusan Melayu and The Star. It had also been reported on air the evening news in Astro Ria.

The organising committee wished to express its greatest gratitude to IEM Education Fund, Shell Malaysia, all participating universities, the press and the supporters for their support and participation. Without them, this event would not be successful. ■

Mechanical Engineering Technical Division

"RISING FRIDAY" 1/2 day Seminar on Vertical Transportation – Design, Modernisation and New Technologies

By : Engr. Lum Youk Lee, *M.I.E.M., P.Eng.*

METD has done it again. The 7th "Engineers Get Together Friday" was successfully held at Finnegan Irish Restaurant along Jalan Sultan Ismail, hosted and sponsored by OTIS Elevator Company (M) Sdn. Bhd. The theme of the day was "Rising Friday" where we invited distinguished specialists to speak on various topics of Elevator systems. The afternoon seminar started right after the host of the day, Engr. Raghib Azmi, the Director of New Equipment, delivered his welcoming address to over 80 engineers from different industries including consultancy, contracting and manufacturing.

CP Chin (OTIS Business Development Manager) started the day stressing that the key success factors of lift systems design need to marry the equipment model and specifications against the building owner's requirements. Floor height, population density, zoning are examples of key design parameters to be looked into, which shall be a joint effort between architects, engineers and manufacturers. Traffic analysis is another key subject in the design focus on various performance indicators such as traffic pattern, car speed, handling capacity, door time, etc. Chin advised some design initiative will greatly reduce the potential congestions are to avoid having high population facility at upper floors such as ball room, F&B outlets, and sharing basement lift with office lifts. He stressed, be it rule of thumb such as 275 person or 3500m^2 / lift or detailed traffic analysis is employed, lift traffic performance is highly dependent on human behavior and occupant's traffic pattern (mix or single tenant, high quantity of visitors, etc) and explained different configurations of lift programming employed in some recognisable buildings such as John Hancock, Petronas Twin Tower, OCBC Singapore. As building tenant and requirement changes from time to time, engineers may consider incorporating more advanced intelligent traffic monitoring and management system..

Second speaker Patrick Chin (Sales Manager) presented various driving mechanism of lifts includes high rise gearless (2-15mps), mid rise geared and mini machine (1 to 2.5mps) and mid rise machine roomless lifts (MRL) (1 to 1.75mps). Key advantages of features to MRL are cost (includes structural) saving, space saving and allow better aesthetic building façade (with the absence of protrusion of motor room on the roof). Besides, gearless pm motor and CSB light traction are the technical platform for energy efficiency for such lifts. Despite the rising trend of MRL application in modern buildings, Patrick reminded the engineers not to overlook various statuary requirements on MRLs includes compliance to Akta Kilang dan Jentara 1967, Kod EN-81-1, Lift directive 95/16/EG, and approval of waiver for MRL lifts prior to submission and inspection by JKKP are equally applicable.

The last speaker K. M. Cheong explained modernisation to old elevators in buildings can be better option than total replacement considering the cost and disruption to the operation. Besides modernisation enable old building to enjoy latest technologies with minimal disruptive engineering and architectural activities, at times modernisation can achieve almost similar aesthetic and engineering results as new ones, successful cases are like Menara Standard Chartered's 2004 modernisation (after 19years) and 3rd modernisation (in 1996) of the 1889 lift installation in Eiffel Tower, Paris. Modernised parts are typically relay controllers, mechanical selector to Velocity and position transducer, microprocessor and drive technologies, DC motors too shall be upgraded to direct drive system. Hoist way equipments to be replaced are traveling cable, some lift car components and car interior finishes. Cheong summarised that OTIS has successfully completed over 14000 modernisation activities worldwide and developing countries like Malaysia with aging buildings will soon experience more of such similar activities.

Soon after presentation of certificate of appreciation by Engr. Luk CB, the METD Chairman to Engr. Raghib Azmi from OTIS and Restaurant operator En. Faizal, the organising chairman announced the beginning of session two of the day – hang loose dinner buffet and cocktail net working. All the participants stayed on to enjoy the technical displays and mingled to enjoy the great restaurant atmosphere. ■