

SIMULATED MARS ROVER MODEL COMPETITION – EVOLUTION AND SUCCESS

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Introduction: This is a summary report about the success of our contestants of our Mars rover model competition, the Hungarian Competition of the Applied Engineering Sciences called Magyarok a Marson (Hungarians on Mars). Since 2006 we have been organizing the contest throughout difficulties. Last significant difficulty was a new holiday fitted into spring by Hungarian Parliament and we couldn't organized our Competition at our usual dates at the usual place and it postponed into 2020.

It is a good opportunity to tell the recent success of our old contestants who became supporters of the Competition nowadays and where we can show the process of the evolution of the teams.

We reported the Competition in the previous years (Sipos, Vizi 2009-2019) [1,2,3,4,5,6,7,8] at the 40th-50th LPSC and at several conferences in Hungary, e.g. at H-SPACE 2016 - 2019 [9] and the plan for 2019. [8]

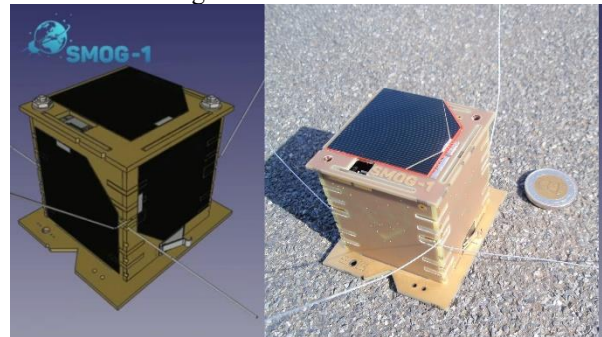
Successful teams: We report about teams which were participating in several years and after some years they became supporter, promoters, advertiser and organizers of the Competition.

Team VAC 2008 – Masat-1, Smog-P: The winner of the year 2008, started in 2007. They from the Department of Broadband Communications and Electrical Engineering of Budapest University of Technology and Economics (BME HVT). Members became the main students and assistant professor participant of the group of the first Hungarian satellite



named Masat-1 and after the senior officials (CEO, CTO) of the C3S Electronics Development LLC. Company's portfolio includes HW & SW, embedded systems, the development of small satellite components and application and planning to complete missions. C3S has joined to the development of the PLATO 2.0 exoplanet hunter mission in 2015. In 2016 the development of the Hungarian RADCUBE satellite has started, in order to be able to monitor real-time of the space weather and cosmic radiation. In 2017 C3S has joined to the SMILE mission (X-ray telescope). [10]

The BME HVT recent success are the SMOG-P and ATL-1. [11] On December 6, 2019, the Technical University of Budapest SMOG-P and ATL-1 PocketQubes were launched on an Electron launch vehicle from the Mahia Launch Complex in New Zealand. The satellites carry spectrum monitoring payloads and are currently active. The Smog-P is the smallest working satellite of the world in orbit.



Team RGATE – Science Roadshow of HAS: The group started at 2010 as high school students and were well placed in the race during years. They conserved all of rovers for years in good, working state and they undertook to attend the Hungarian Academy of Sciences' (HAS) demonstrations for students – called



Colourful Physics Roadshow – for years countryside and abroad.

Hunveyor group: The the Hungarian UNiversity surVEYOR project [12] The simple, clear design of NASA's Surveyor space probes, which landed smoothly on the moon between 1966 and 1968, provided an opportunity for an experimental space probe model to be built by the Eötvös Loránd University faculty and

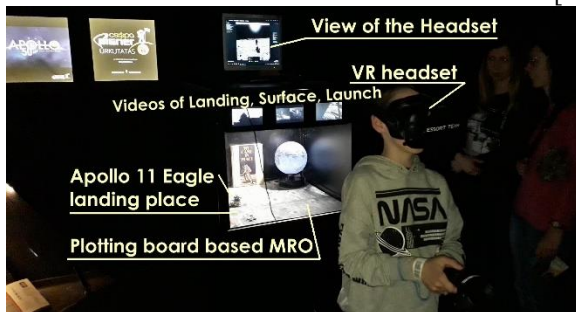
students in 1997. The construction was started on the basis of literary history of the American researcher Eugene Merle Shoemaker. Teachers and students began work on implementing the space probe model robotics



on a PC basis. They joined in 2008 and they invited the contest's members to participate at several University events to popularize the Competition several times.



Essort team – Apollo 50 VR: Members of Essort made a company which is an Virtual Reality (VR) expert and set a VR environment on the exhibition of CsoPa. [13]



Mars Mining Corporation – Rescube: The group started in 2006, was the winner of the year and also at 2010 and several times over the years they finished in the first three places. The Rescue League was born in the minds of organizers after the Kobe earthquake in 1995 and has since become one of the most complex races in Robocup. [14]. The Rescube team as an enterprise that won the International Atomic Energy Agency IAEA

organization's mandate to create an underwater rescue robot system deployable in atomic plants.



A-TEAM – a new organizer of the Competition: They joined in 2009 and were the first place in 2015. The competition venue will be the fourth time the University of Miskolc, Miskolc. The event is organized by A-TEAM team members also.

Conclusion: A community emerged during dozen years of the competitions. The contest itself provided an excellent possibility to collect groups of talented people, engineers, who have become excellent organizers and investors in the field of Space Research and connected fields of sciences. Last but not least, they got to know each other, which is a huge benefit of cooperation.

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<https://www.amsat.org/smog-p-and-atl-1-designated-magyar-oscar-105-mo-105-and-magyar-oscar-106-mo-106/> ; [12] Hunveyor <http://mii.ttk.pte.hu/iatt/hunveyor> ;

[13] CsoPa <https://www.csopa.hu/en/> ; [14] MMC and

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