A German Team of young “Part-Time-Scientists” joins the Google Lunar X-PRICE

The “Part-Time-Scientists” team is the first Germany-based team to join the Google Lunar X PRIZE. Headquartered in Berlin, Germany, they are a non-profit organization financed by donations, their own capital and sponsors including leading companies like Texas Instruments (electronics and semi conductors) and O'Reilly Media (computer book publisher). Comprised of seven members, the team is one of the youngest in the competition, averaging a 20-something age mark.

The Google Lunar X PRIZE is a $30 million international competition to safely land a robot on the surface of the Moon, travel 500 meters over the lunar surface, and send images and data back to the Earth. Teams must be at least 90% privately funded and must be registered to compete by December 31, 2010. The first team to land on the Moon and complete the mission objectives will be awarded $20 million; the full first prize is available until December 31, 2012. After that date, the first prize will drop to $15 million. The second team to do so will be awarded $5 million. Another $5 million will awarded in bonus prizes. The final deadline for winning the prize is December 31, 2014.

Since the “SpaceOps” organization was established to foster continuous technical interchange on all aspects of space mission operations and ground data systems, and to promote and maintain an international community of space operations experts from Agencies, Academic Institutions, Operators and Industry, the SpaceOps community is very interested and eagerly following the Lunar X-PRICE developments.

SpaceOps News (SoN) was granted an e-mail interview with the young team to exploit some details of their approach.

SoN: As of June 24, 2009 you entered the Google Lunar X PRICE competition, what motivated you to do so?
Each of us is a big space fan since early childhood. Space is fascinating. It captures the imagination and lets you dream. So when the chance presented itself, in form of the Google Lunar X PRIZE, to make a childhood dream come true we took it.

SoN: What is the experience of the team and what makes you confident to win the price?
The PTS team members have a diverse background. I.E. Software Development, Management, CAD/CAM Hardware Development, Advanced Physics and Mechanics, as well as Communication Engineers. None of them have any experience in the field of space exploration. So everyone brings something important to the table but has to acquire a lot of knowledge as well. That may not sound very reassuring. But it means that no one comes with baggage. Our unique perspective on all matters space let us see things with an open mind. We’re optimists first and realists second.

SoN: Can you briefly outline your overall concept and approach?
The classic part of our concept is the way we get to the Low- Earth- Orbit This will be done using one of the available space carriers, like SpaceX for example. The other part of our approach will be featuring a lot of newly developed technology in space exploration. A lot has happened in the last 40 years.
To name one specialized subsystem, the board-computer of our lander and rover will be featuring newest HiReel certified components only.

SoN: You are striving for a direct communications link between rover and the ground station. Are you also following the “Internet in Space” developments for that purpose?
If possible (this depends on a cooperation with ESA), we would like to connect our communication subsystem with the currently deployed DTN system in earth orbit. Our direct communications system is currently a big secret. This special system will be put under a creative commons license at the end of this year. We are currently working on prototypes to demonstrate this system.
If everything goes as planned we will present our prototypes and publish our data at the CCC Congress 2009 in Berlin this December.

SoN: Possibly the management aspects of the whole enterprise are of secondary concern to you but you ought to have some management principles – what are they?
Our Team is based around a group of 7 members, each member has a specialized set of skills. This combined with a lot of support from helpers all around the globe provides us with quite a strong and experienced workforce. As time and project management is one of my special skills I took the whole management part very seriously. Due to this we've managed to finish a concept in only 6 months time. As we have been working on this project since December 2008 we are currently working on our rover and communication prototypes.

SoN: How are you planning to slice up the tasks and how you conduct the internal exchange of information (internet, meetings, documentation)?
We are utilizing common internet technology like IRC, VoiP, E-Mail but newer platforms like mindmaps and Wiki as well.

SoN: Will you develop a Plan-B?
We always have at least a full deck of aces up our sleeves. You can expect at least a Plan-K from us. But of course we're not making any of them public at this time.

SoN: Building a command responsive or automated rover fulfilling the requirements is difficult, however getting it to the moon and soft-landing it on a designated spot might be really challenging – what are your transport options?
We want to soft land using a proven rocket engine. Not a self developed rocket. Using a commercial rocket engine it should be possible to get an accurate landing spot.

SoN: On your public page there are hints that you might be planning to construct your own rocket – have you heard about a previous effort by Lutz Kayser to build a cheap launcher. Would this be a model for you?
(see OTRAG, http://de.wikipedia.org/wiki/OTRAG).
As stated before we are going to use a normal launch provider.

SoN: The Google rules ask for a 90% private funding. Are you planning to acquire institutional support (e.g., Deutsches Zentrum für Luft- und Raumfahrt – DLR) for the remaining 10%?
We're obviously not opposed to the idea of someone giving us money. If we can get some of our tax money back and put it into our project, we'd be very glad.

SoN: Do you recon with an impact of the financial crises during the next years with respect to donations?
Many companies are reluctant to give away money when there is nothing to gain. So far we always managed to win sponsors not by asking for money. But for support in general. That's how we got a free Mindmeister account for our entire team, CAD/CAM licenses worth several thousand Euros from Cadsoft and HiReel certified hardware from T.I. Money isn't everything. Sometimes the tools necessary to do our work are just as good.

SoN: Is there any sponsoring acknowledgement for the donating parties (tax breaks etc)?
We plan to have a "Verein" ready soon that'll make tax breaks for donations possible.

SoN: How do you assess your competitors?
There are definetly some good teams out there doing solid work. We wouldn't mind cooperating with some of them in the future. Although there are also some teams that haven't convinced us of their sincerity in doing anything worthwhile during the course of this competition.

SoN: Since the team has to make a living during the time of the competition – how much time are you planning to dedicate to the X-Price?
The name of our team is how we do things. This is a strictly part time project. Nobody on our team will quit their day job for PTS. That being said most of our free time is committed to the project.

SoN: What are your professional plans after the X-Price?
We are going to continue our developments that were born out of the X PRIZE. Even in a case where the the first, second and third price were already taken. We have numerous side projects which are totally independent of the competition. That can develop into valuable additions of the private space industry.

The SpaceOps community is very enthusiastic about initiatives furthering the progress of space exploration, therefore we wish you all the luck you need for a successful competition.

Joachim J. Kehr Editor SpaceOps News (July 2009)

For more information about team The Part-Time-Scientists, please visit *http://*www.part-time-scientists.com. High resolution photographs, video and other team materials are available upon request.