

(I+ROBOT) SPIICA Solutions for Innovation and Integration Science of Astrobiology German Sarmiento¹, Carlos Sarmiento², Sandra Garay³ and Jorge Bueno^{4 1,2,3,4} Instituto de Astrobiología de Colombia german.sarmiento@astrobiologia.org¹, carlos.sarmiento@astrobiologia.org², Sandra.garay@astrobiologia.org³, Jorge.bueno@astrobiologia.org⁴

Introduction: Education in the XXI Century's mission is to respond to new challenges imposed by the present, a present characterized by the rapid advance of science, and communications technology (Castells, 1999) and by a company called "knowledge". In the same way this quickly crystallizes and the future is short because of to the movements and rapid changes that arise; is the case, as knowledge is displayed in multiple dimensions that make it complex, changing and uncertain.

In this context, education plays a key role in building society that demands the contemporary world, a society that does not focus on the reason or industries (as proposed by the project of modernity), but on the contrary, seeks to develop all the capabilities of human beings holistically and the construction of knowledge and advances that meet the demands of a global world without forgetting the needs and expectations of each country and its inhabitants. One of the most striking changes in the society of knowledge and information, is globalization, which resulted in the breaking of the barriers space, time and thought (Dominguez, 2009).

In this way the implementation of educational projects that promote research in science, technology, engineering and mathematics (STEM) [1] are not only innovative defragmentation facing knowledge, but also allows students and teachers to achieve transform the perspective of knowledge that seems fleeting, finding the utility and the projection of their talents in different disciplines that are addressed in school or college.

SPIICA building in its version, responds to different perspectives of education required for the future, not only aims at strengthening research since an early age, but also SPIICA – Solutions for Innovation and Integration Science of Astrobiology – Lunabotics Mining Competition aims to answer issues of global order, meaning proper context to planet (Morin, 1999), strengthens the development of individual talents in terms of a collective goal, involving students from different grade levels (from high school to graduate level), training at different discipline (electrical engineers, mechanics, teachers biology, chemistry, mathematics) and various socioeconomic conditions (students living in vulnerable conditions). [2]

Colombia Astrobiology Institute has been working with great enthusiasm in the project Lunabotics by linking an interdisciplinary group involving high school students, college students electrical engineering programs, mechanical systems, industrial and programming, as well as professional engineers in electronics, mechanics and physics. In this measure, the project has become a vital space in which students and professionals have been forged in every encounter a dream which gives the technology from significant experiences.

So SPIICA is the point of convergence of different disciplines that project from their fields, joining forces to realize a system that combines innovation with a proposal that focuses on new possibilities of lunar material extraction.

So from the area of space exploration Colombia Astrobiology Institute, under the coordination of the IAC and his team structured the model for a period of three years from the first competition in 2009 until today. During this process has advanced education program that welcomes students from three high school and college students from five universities in the city of Bogotá DC - Colombia.

In this context, the robotics program has generated opportunities for integration and competition related to mechanical and robotic models with high school students and thus motivate and mental structures in children and young people aimed to study engineering as well as participation in the district game Lego League (LL) developed in Bogotá during the month of March, being worthy of first place in the youth category with one of our students.

The project has provided integration different spaces that make up the staff team. These activities have been developing in a scientific environment and playful as field trips and astronomy camp "Night of Stars" during the month of February.

References: [1] NPD 1000.0—The NASA Strategic Management and Governance Handbook sets forth principles by which NASA [2] NPR 7120.5C—NASA's Program and Project Management Processes and Requirements. Agency policy governing management of programs and projects.