GALACTIC SUITE SPACE RESORT

Press Brochure

January 2013

GALACTIC SUITE SPACEresort

Table of Contents

1. The Company

GALACTIC SUITE SL is one of the **leading companies in the emerging space tourism industry**. Founded in Barcelona in 2007, GALACTIC SUITE creates and develops cutting-edge concepts to improve the orbital tourism experience. As of today, the company is involved in the design, development, and promotion of the GALACTIC SUITE Experience.

The company is developing **the world's first space hotel chain with modular space habitats**, small bioinspired space stations orbiting around the Earth designed to accommodate space tourists. The company's ultimate goal is to make space tourism accessible to the public.

1.1. Management Team

Xavier Claramunt

President
Xavier Claramunt founder and president of GALACTIC SUITE, and is an ever-surprising entrepreneur in the fields of architecture and industrial design. He took off as aeronautical engineer but ended landing as unpredictable architect. He works in Barcelona, with satellite offices in China, Dubai and México. He entered the space tourism sector, focusing in maximizing the customer experience in the development of an orbital hotel. He is best known for his way of working without prejudices, his unconventional way of dealing with commissions with no fear of entering unknown fields.

Marc Zaballa

Head of Projects
Marc is architect by the Technical University of Catalonia and alumnus of ISU. In 2006 Marc entered the space tourism company GALACTIC SUITE as Head of Architecture for the space hotel project, coordinating the team that designed the architecture of both the Earth and Space segments. Marc is currently member of the Executive Board and Head of Projects of GALACTIC SUITE, also responsible for the coordination of new aerospace concepts including the leadership of the international consortium competing at the Google Lunar X PRIZE.

1.2. Preferred Partners

EADS Astrium

Astrium is a global space industry leader, with world-class expertise and extensive prime contractorship experience across all sectors of the space business: in Europe for the space system and space services; it covers almost all domain such as launchers, satellites, manned orbital systems and services. Astrium has more than 12000 employees in several sites in Europe mainly in France, Germany and United Kingdom but also in Spain and Netherlands.

Center of Aerospace Technology (CTAE)

CTAE is a not-for-profit private foundation, integrated in the ASCAMM Foundation, that provides technology services to local industry, while also participating in national level and European research programs. It comprises a multidisciplinary group of specialists who work directly for private clients, or as members of integrated project teams with clients including the European Space Agency, the Galileo Supervisory Authority, the regional government of Catalonia, the national government of Spain, and the European Commission, in addition to many industrial customers.

Technical University of Catalonia (UPC)

The Technical University of Catalonia (UPC) is a public institution of higher education and research, specialized in the fields of architecture and engineering sciences and involved in technology development. UPC develops quality research, and its high level of technology transfer to society generates knowledge, research, innovation and technological advancement.

GALACTIC SUITE established in March 2011, the Chair Enterprise “GALACTIC SUITE” as a specific instrument of particular intensity and duration, to formalize the collaboration between the company and the university in activities related to R+D and transfer knowledge.

Stardust Consulting

Stardust Consulting is a legal advisory firm specialized in space. It advises both private companies and public institutions, including the issue of space tourism. Its members are part of the International Institute of Space Law (IISL) and the European Centre for Space Law (ECSL) of the ESA. Its activities aim at developing the Spanish space sector regulation because, unlike other countries around Spain, there is no Spanish Space Law regulating space activities and encouraging its access to the private sector.

4Frontiers Corporation

4Frontiers Corp. is an emerging American space commerce company with unique expertise in space facility design and related technologies. The company has access to a broad array of technical and social science specialists that strive for unparalleled realism in modelling the new space frontier.

IRS Stuttgart

IRS Stuttgart is a Stuttgart University Department specialized in orbital mechanics.

ADS

ADS is a Swiss engineering group providing consultancy services on sustainability at all levels of the architecture process.

1.3. Advisory Board

The Company has brought together world wide aerospace specialists to constitute the GALACTIC SUITE Advisory Board, which holds its meetings regularly in the city of Barcelona.

Mr. Accensi, Antoni

He has been with ESA since 1967 managing several space projects such as Biorrack and has also been involved in the Extravehicular Activities (EVA) space suit system design and development.

Prof. Bedini, Daniele

Space architect, member of ADI. He serves as consultant to the European Space Agency (ESA) in developing space habitats, and is assistant professor of space architecture at the International Space University (ISU).

Mr. Collins, Patrick

He is the co-founder of Space Future Consulting, and an exceptionally well known and respected authority on space economics, space tourism, reusable launch vehicles, and space solar power.

Mr. de Dalmau, Juan

He is a staff member of the International Space University (ISU) and is currently Chief Communications Officer of ESTEC – ESA.

Mr. Harillo, Rafael

He is a member of the Spanish Centre for Space Law (CEDE), and the Spanish representative of the European Centre for Space Law (ECSL). He is also Secretary of various Executive Committees of space associations.

Mr. Homnick, Mark

He is the CEO of 4Frontiers Corporation, an emerging space commerce company, and program manager for the Mars settlement Generation II design study. He has directly managed $1 billion in capital projects.

Prof. Martínez Abascal, Eduardo

He is Professor in the Financial Management Department in IESE Business School. He has also been a visiting scholar in the Sloan School of Management at the Massachussets Institute of Technology (MIT).

Prof. Peeters, Walter

Professor of space business and management at the International Space University (ISU). He has been with ESA since 1983 involved in several space initiatives such as EuroMir and former head of EAC.

Prof. Tolyarenko, Nikolai

Director, Masters Programs at the International Space University (ISU). PhD in Orbital Mechanics, and his research interests are design methods for space transportation systems and orbital space stations.

2. Vision

GALACTIC SUITE believes that space tourism will contribute significantly to economic growth and hence global welfare, as well as to promote peace through shared international activities in space.

This can be achieved in a variety of ways. For example, a set of fundamental technologies that cuts across all industries/sectors could be leveraged, and benefits derived from the employment they create. From health and medicine to leisure and entertainment, space tourism will bring new business opportunities and new technologies that will be revolutionizing the way we live and work

GALACTIC SUITE envisages the emerging space tourism industry as a major driver for this change of paradigm in the space economy. To create a complete driving project, the company designs, develops, and promotes of a fully integrated space-based tourism concept focused on giving people an extremely thrilling, transcendental experience: the GALACTIC SUITE EXPERIENCE will combine elements of training, leisure and entertainment, both on Earth and in orbit.

3. The GALACTIC SUITE Experience

The company has positioned itself in the emerging space tourism industry by launching a fully integrated space-based tourism concept focused on giving people an extremely thrilling, transcendental experience - the GALACTIC SUITE Experience. The package will combine elements of training, leisure and entertainment, both on Earth and in orbit.

3.1. Participants

The experience has been designed for space tourists in three different level of involvement:

- The space tourist who will go through the full experience, including training and the orbital trip.
- Members of the space tourist's family who may accompany the space tourist to the launch as well as in leisure activities.
- The occasional visitor who will be able to visit the leisure installations for short periods of time, but will have no contact with space tourists and their families.

3.2. Time Segments

The whole experience is divided into five segments:

3.2.1. Pre-Launch Activities

This segment includes all the operations to bring space tourists and their families from their homes to the GALACTIC SUITE Space Port's specially selected site. The GALACTIC SUITE medical team has designed a 16-week physical training course prior to the flight. Space tourists will be instructed in the theory and practice of different rescue techniques in preparation for potential emergency situations. They will also experience life-size GALACTIC SUITE Space Resort models and simulators. Theoretical

tuition will include basics in space enviroment physics, chemistry and physiology. To achieve a fully responsible approach to space travel, there will be a philosophy course which will include an overview of ancient beliefs and modern theories about space, its origins and destiny. Space tourists and their relatives will be accommodated in suites with all the comforts required for a perfect stay on an idyllic island. As they relax in the natural landscape, they will enjoy a whole range of activities such as visits to the beach, canoeing, diving, golf and sightseeing

3.2.2. Launch and Transfer to Orbit

Space tourists will be launched into space aboard the GALACTIC SUITE Spacecraft, which will then travel to the space resort. The flight will be one of the main highlights of the experience. Aboard the craft, space tourists will reach a speed of 28,000 km/h in ten minutes after rocket ignition. With adrenaline flowing and tension building up, this will be one of the most exciting moments in a space tourist's life. In the early years of the hotel, the launch and transfer to orbit will be provided by Soyuz type rockets launched from Baikonour, in Kazahstan.

3.2.3. Stay in Orbit

This segment is the climax to the whole experience, the stay aboard the GALACTIC SUITE Space Resort. The modules have been specially developed to comfortably accommodate space tourists in space while they enjoy the experience of viewing the Earth and stars. From such a privileged observatory, they will watch fifteen sunrises and sunsets each day while completing an orbit around the Earth every 90 minutes.

The GALACTIC SUITE Space Resort has been designed to provide space tourists with the largest protected private enclosure in space which will enable them to enjoy floating around in a state of weightlessness. The space tourist will also be able to take advantage of personal communicatino systems to Earth, and to take part in the most unique experience of going out to space in a extra-vehicular activity (EVA). In the meantime, the crew will take care of their every need to ensure the most pleasant stay.

3.2.4. Return to Earth

Waking up on the last day in the GALACTIC SUITE Space Resort, space tourists will feel downcast, but there will still be a few sunrises and sunsets to watch before leaving the hotel. Space tourists will take their last pictures of the Earth and stars before packing their personal belongings and loading everything back onto the GALACTIC SUITE Spacecraft, which will have been docked at the hotel during the whole stay. After the systems are turned off, the craft will undock and the hotel will be left ready to receive the next group of lucky space tourists.

3.2.5. Post Flight Activities

Space tourists will need about one week for post-flight recovery on the GALACTIC SUITE island. Special physical and psychological rest periods will enable them to re-adjust to everyday living on Earth. At the end of such a long journey of almost five months, GALACTIC SUITE will then take space tourists back to their homes wherever they may be on Earth. No matter where they may live, nowhere will be as high up as the Space Resort they have just left.

3. The Orbital Segment

The general concept for the space hotel, the Orbital Segment of the experience, the GALACTIC SUITE Space Resort, is that of a space refuge without permanent human presence on board orbitting at an altitude of 450km. It will be occupied every one or two weeks for a length of four or six days. Every time the access spacecraft docks at the hotel, it will bring just the passengers and a minimal amount of supplies. This is a similar concept to a mountain refuge or hut - when passengers arrive, they will turn the systems on, use the refuge for a few days, and then turn everything off again before leaving. With no human presence on board, systems will run at a minimum.

3.1. Access

The total capacity of the station was set by a future development of a Reusable Launch Vehicle (RLV) with Horizontal Take Off and Landing (HTOL) flight profile. This vehicle should convey 2 crew and 4 passengers to the correct orbit and support rendezvous and docking operations. A total of 6 people would arrive per launch, which placed boundary values on the dimensions of the different elements.

While this vehicle does not yet exist on the market, the alternative is based in available commercial manned flights, currently based on Soyuz capsules being launched from Kazakhstan. As a mid-term alternative, it will be also available the Dragon capsule onboard of the Falcon rockets, under development by the American private company Space X.

3.2. Construction and Phasing

The GALACTIC SUITE Space Resort is a small modular space station which final configuration will consist of four modules, with the necessary Environmental Control and Life Support Systems (ECLSS), Power and Communications, Attitude and Orbit Control, Crew safety and Thermal Control, not just to guarantee a safe experience, but to offer the most comfortable stay in space. Each of the modules will have independent capabilities which will provide redundant life support for all the modules.

After fruitful discussions with EADS Astrium, it was decided to reuse already ATV modules with different levels of modifications and to define the most optimised scenario for assembly and maintenance in terms of cost. This allows benefiting from the know-how accumulated by Astrium-ST in the orbital system and successfully demonstrated during year 2008 and 2011 with the missions of ATV Jules Verne, ATV Johannes Keppler and the assembly of Columbus to ISS.

The Automated Transfer Vehicle (ATV) is an expendable, unmanned resupply spacecraft developed ESA with EADS Astrium-ST as prime contractor. It has been designed and successfully used to deliver supply to ISS, to reboost ISS and to collect the waste for destruction during re-entry.

Mounted on top of an Ariane 5, the ATV has a launch payload up to 7.7 tons and its pressurized volume is 48m3. It is 10.3m long and has a diameter of 4.5m. With its four solar arrays, its span is 22.3m and can generate up to 4.8 kW of electricity. The high level of autonomy of the ATV vehicle will allow controlling its environment and its orbit situation autonomously during the periods in which the hotel will

stay unmanned. This will also allow the visitors to have plenty of time devoted to their experience and pleasure.
The current launch capabilities to access the space hotel adjust the project in two phases, one with a single module configuration, and a second phase when the station will grow up to four modules.

3.2.1. Initial Scenario

The initial configuration, totalling 440 milion Euros, with a free flyer single module will provide a total of nearly 50m3, as large as a double deck London bus. The module will house the necessary equipment to comfortably accommodate the space tourist.

In this initial configuration, the free flyer module will peform as an habitation module, allowing a personal space for resting, relaxing, reading, stargazing and other activities carried out as an individual or as a couple. It will also serve as a service module with an integrated galley and the restroom.

3.2.2. Extended Station

Once commercial operations are running, it is foreseen that a reusable launch vehicle with more than two passenger seats could be available and therefore an extended mission is envisaged with capacity for six people and a total of four modules, with a node module and two extension modules added to the first free flier.

The node module will perform as the service module and will allocate all the common spaces such as the galley or eating area, while the initial single module and the extension modules will become the habitation modules.

3.2. Interior Design

The interior architecture of the hotel is designed to fulfill the needs and expectations of the space tourist in a once-in-a-lifetime experience.

The internal walls are modelled as an asymmetrical topography, hiding necessary storage and equipment, which establishes areas with different degrees of intimacy while keeping a single space without closed divisions. These areas will allocate different functions such as sleeping, relaxing, reading, communicating with Earth, etc...

The topography is shaped using organic curved shapes made with solid foams and space qualified revetments such as Nomex with some bands of Velcro to to allow the passenger getting attached with a special Velcro suit.

The design maximizes the empty volume of the interior to rediscover the body in microgravity, providing with visual interiors, hiding the necessary equipment, and the largest views to space possible and especially towards Earth and its curved horizon, maximizing the number of windows. Furthermore, the development of OLED technologies allows very thin and deformable displays, large virtual windows, that will display images taken by cameras placed on the outside of the station, pointed towards the Earth and space. These screens will also add information on the images shown (geographical locations, astronomical information, etc.) and even virtual effects as a response to the outer conditions, in a promising field for space artists, who cooperate with the company in such developments.

3.3. The Star Gate

Once completed, the space hotel will have an specific module to prepare the space tourists to go out to space in short but intense space walks, or EVA, standing for extra-vehicular activities. This activities will require of special training for the astronauts and will be offered as an additional service package to the hotel stay.

The module will be placed at the end of the station once this is finnished. To make this unique experience possible, the EVA module will have hatches to isolate it completely from the rest of the station before opening the exterior hatch to the most extraordinary experience: the sight of stars and Earth without nothing else in between but the astronaut suit.

4. The Ground Segment

The Orbital Segment, the space hotel, is backed by a ground segment: the GALACTIC SUITE Space Port that comprises all the infrastructures needed for Earth-bound activities related to the space tourist experience. Situated on a tropical island, it meets all the requirements for a suitable location from which to launch sapcecraft into the GALACTIC SUITE Space Resort's chosen orbit. It is made up of different operational areas spread over a total surface of 100,000m^2, with investment in facilities totaling 150 million euros.

4.1. Technical Area

The technical area consists of all the facilities required for take-off, landing and maintenance of GALACTIC SUITE Spacecraft and private jets, including the control buildings. There is also a large harbour for deliveries of technical equipment and fuel

The buildings take their inspiration from the outline of the existing landscape, stretching out into radiating beams which blend into the surrounding terrain. They are designed as luminous structures which allow the spacecraft to emerge from their interior on the Maglev acceleration module while the buildings open up in layers, enabling the interior to be bathed in natural light. They will cover a built-up surface area of 28,000m^2.

4.2. Training Area

This holds all the training facilities for *space tourists* during the required 8 to 12 week training period. It will include all necessary installations such as a human centrifuge, swimming-pool, gyms, conference halls, library and infirmary as well as the dining quarters and cafeterias, which are also used by the technical staff.

These buildings are situated alongside the technical area and are similarly shaped to the technical buildings, but on higher ground. Their total surface area will be around 12,000m^2.

4.3. Recreational Area

This area is proposed as a facility for visitors on one-day excursions from nearby locations to view operations in the technical and training areas. These facilities will also provide opportunties for the space tourists's families to enjoy educational and recreational activities related to space as well as offer a magnificent viewing platform overlooking the launchway and landing area.

Situated at the top of a cliff on the southern side of the GALACTIC SUITE island, the buildings are conceived as large skylights that direct light into their interior while inviting visitors to view the outside. They house museums, simulators, shops, restaurants, cafeterias and a viewing platform overlooking the launchway. The area will cover a total surface of 20,000m^2.

4.4. Accommodation Area

This will comprise a luxurious hotel resort surrounded by breathtaking natural landscape, which will serve to accommodate *space tourists* and their families during their stay on the island. The main part of the island will remain undeveloped in order to preserve the native flora and fauna. The resort will include a total of 100 rooms divided between different types of floating suites along the coastline and rooms hanging over nearby cliffs. The central building will hold a conference centre, restaurants, cafeterias, a spa and wellness centre and facilities for sports such as golf, tennis and canoeing.

The buildings find their inspiration in large flowerpots, some of them half-buried, covered by ground and water to improve the building's passive adaptation to the climate. The accommodation area will have a total surface of 40,000m2.

FAQ

How was the GALACTIC SUITE Project born?
GALACTIC SUITE is a multidisciplinary company where architects, engineers and industrial designers work together in a team. Part of the company, the EQUIP XCL_LAB, largely focuses on researching advanced design concepts. The GALACTIC SUITE Project was born there and then came along investors who considered the project feasible.

Have you had any contact with space engineers at NASA or ESA regarding the development of the GALACTIC SUITE Project?
GALACTIC SUITE is an exclusively private venture which was set up to build a hotel in space. As it is entirely funded by private investment, government agencies such as ESA or NASA have taken no direct part in it. However, many of the people working on GALACTIC SUITE have been involved with such agencies and several enterprises which are providing services to GALACTIC SUITE are regular service providers to these agencies.

What stage is the project currently at?
The project has passed several major milestones and is well on its way to becoming a reality. Plans for building the GALACTIC SUITE Space Resort are at an advanced stage and the company has set up the necessary partnerships to achieve it. However, the complexity in the adaptation of the Environmental Control and Life Support Systems to meet the requirements of accommodating space tourists, has obliged the company to postpone its initial plans, although it expects to launch the test module in 2014.

Why did you chose a tropical island as the location for the training area? What is special about this particular area of the planet? What is the island called?
A tropical island has been chosen due to the advantages it brings with regard to technical considerations and our whole concept. Firstly, the lush vegetation in the equatorial regions allows us to get extremely close to nature. More than anything, however, being close to the equator enables us to take advantage of the Earth's rotation for future launches. The name and exact location of the island cannot yet be revealed.

What kind of persons are NOT eligible to travel to the GALACTIC SUITE Space Resort?
According to Professor Walter Peeters, a consultant advising GALACTIC SUITE, a difference should be made between two categories when it comes to defining medical criteria: The first one covers the so-called "select-out criteria", or "causes for disqualification", which are defined as 'any medical condition or treatment regime which could endanger the health of the passenger, fellow passenger, or crew; compromise safety in-flight or on the ground or pose a threat to completion of the flight'. Such criteria will, theoretically, prevent a person from taking part in space flights. The second category includes "exceptions or waivers", which provides for a number of circumstances under which a theoretical prohibiting factor could be offset by a waiver.

How much will the ticket cost?
The price of the ticket will be around three million Euros, although it will depend on the services finally contracted, since in a second phase there will be activities such as the space walks that will be optional.

What kind of training will the passengers undergo?
The GALACTIC SUITE space tourists will receive specially designed training in preparation for their trip of a lifetime. It will consist of 8 to 12 weeks physical training to ensure their bodies are able to withstand acceleration forces and microgravity conditions. Training will also cover special rescue procedures in case passengers are faced with emergency situations. The GALACTIC SUITE space tourist will also receive instruction on physiology, physics and chemistry in space. They will take a philosophical look at the way ancient civilizations regarded space, together with the latest theories on the origins of space and its future.

What will the space tourist's diet be like?
We cannot reveal what kind of meals they will eat yet. However, the project has developed new concepts in space cuisine, as it is not just about bringing Earth food into space to eat it there, but also about developing new ways of eating. Eating in the GALACTIC SUITE will become a game, playing not only with the food but also its packaging.

What kind of experiments will the space tourist carry out?
GALACTIC SUITE is developing a programme to set up a series of experiments for its initial flights. The aim is to offer space tourists original activities which they can paticipate in while cooperating with univeristies by carrying out experiments under microgravity conditions. Some of the items in this programme have already been decided on and include cooking experiments, space crystal growth, organic growth in space and Earth observation.

Are there any national or international regulations regarding putting a hotel into space? What do they consist of?
International space regulations are currently in their infancy, but a few countries such as the US have already introduced such laws. We will definitely see changes with regard to legislation over the next few years.

Contact

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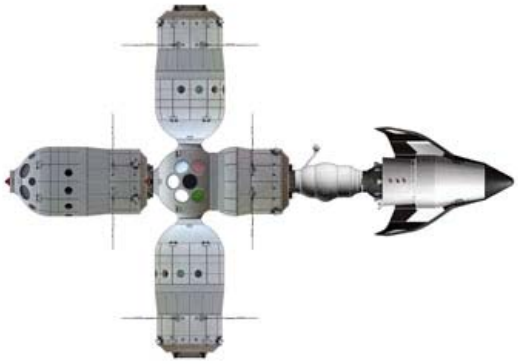

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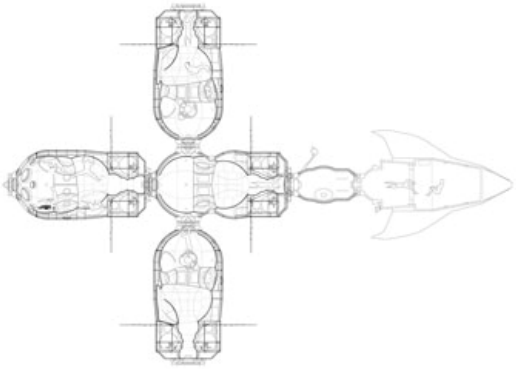

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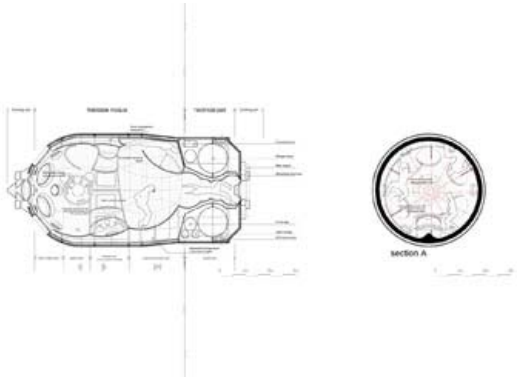

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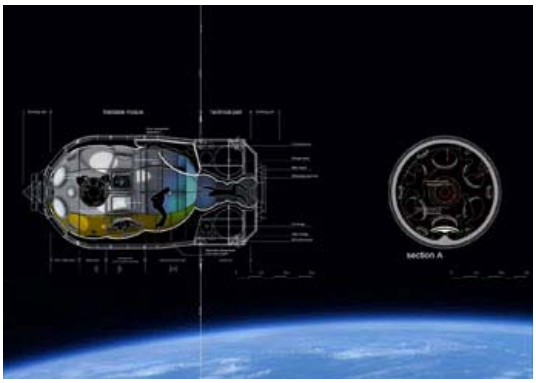

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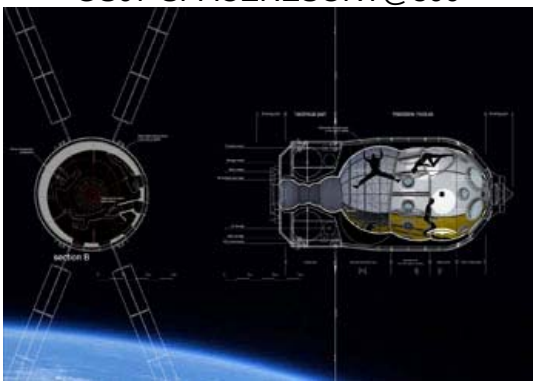

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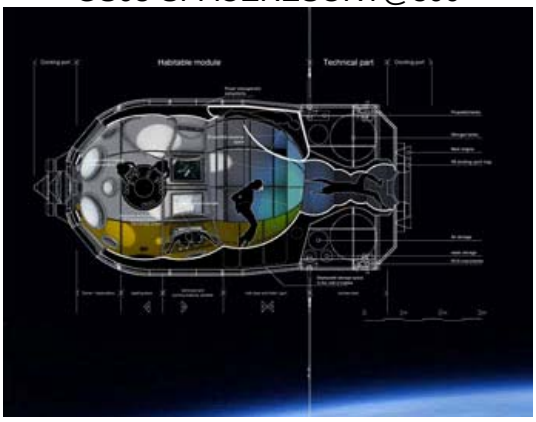

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