

Mr. Bubbles – the Spacecraft

Mr. Bubbles was the code name for Eileen's spacecraft project. Eileen had never undertaken the task of designing and building a spacecraft before. For Eileen it was a project that would occupy her time for the better part of a thousand years. Being immortal meant that Eileen could handle long term projects. Almost from the start she had decided to try and design and build her own spacecraft. While she could have had a lot of the work done by independent contractors there were parts of the project that she wanted to keep secret. It would be more difficult to do if there were more people involved. It might also be prohibitively expensive for what she wanted to accomplish. On the other hand, she was stuck with many man years of work to do by herself. She was pleased with her work. There were a lot of different principles and disciplines involved. Nobody would believe that it was possible for a single person to do. Her spacecraft wasn't going to be something that just crashed down from orbit; it was going to travel the stars.

Part way through the design of the spacecraft Eileen finally came up with a name, based on one of the major features of the craft. She decided to call it Mr. Bubbles for all the bubble works used. Mr. Bubbles would be a lander within a spacecraft within a spacecraft. There were layers to Mr. Bubbles.

Staging Area

Eileen knew what the project would require. She knew she would need a big work area for her project. It also had to be enclosed so as not to attract the curious. She also intended to live comfortably while working nearby. She searched for the better part of two years for just the right location. One day she found it; a location that was less than ideal but workable. It was a larger site than she needed and too visible for her liking. It was a small school that was being decommissioned as a site too inefficient and therefore costly to educate children at. Building the school in the first place had been a poor decision by the government of the day and now they were looking to unload the property. The school was only about 30 years old. She got a deal on the property which was in a good part of the town. Mainly a residential area.

The school was located on a corner lot and 'L' shaped and had several acres of clear land attached for a playground / sports field. The school had about a dozen classrooms and a small gymnasium. She converted it into a 10-unit rental property, keeping part of the school beside the gym for her own apartment. She had most of the school grounds severed from the property and sold it. Eventually more housing went up around the school partially obscuring it from sight.

She wasn't sure just what she'd be able to afford in the long run. So, she estimated roughly the resources she'd have available to complete her project. She was sure she could at least manage producing her own escape pod for travel. She reviewed the requirements for the escape pod. Other than dimensions most of the requirements had to do with docking to an ark. She designed the interface point of the escape pod to the ark around something called the 'elite interface'. An elite interface supported all the lower level interfaces. By supporting the elite interface she'd be able to dock her escape pod at any pod docking point on the ark. Every point from those available only to the ultra-rich down to a "standard" pod interface point.

Layers Within Layers

Mr. Bubbles was organized into several layers with the innermost layer being the most protected and containing the pilot's seat. The piloting seat was inside of a helio-dropper, which was inside of an escape pod. The escape pod was inside of an antenna array / shielding layer.

The escape pod was surrounded by multiple layers of carefully shaped balloons. The balloons were all shaped like pie pieces and made of a mono-atomic polymer foil. The foil was only one atom thick allowing many balloons to be packed into a small surface area. Yet the foil was strong and stable. Fortunately, it did not have to last permanently, only long enough to assemble the spacecraft. Before inflation, the balloons would be folded up and packed against the side of the escape pod. When the spacecraft was being assembled the balloons would be filled with a carbon foam. Once the foam solidified the shape of the spacecraft would be fixed even if micro-meteorites were to penetrate the balloons. The foam was also made from neon gas. By charging the balloons electrically they could be made to glow eerily. The entire spacecraft was like a giant neon light.

While Eileen had gotten several hundred panels manufactured mainly for the antenna array, she decided to build the central escape pod entirely herself. She would build the pod in a simple fashion by coating a balloon with adamantium alloy spray paint. Then cut the resulting stiff balloon apart using a torch. It would be sliced into four wedge shaped pieces so that it could be shipped to the launch site by truck. The pieces would be reassembled into the original balloon form in a hanger at the launch site.

Most of the technology she was using was “off the shelf” components some of which was assembled and integrated into the escape capsule in novel ways. The less stuff she had to develop herself the better.

A total of sixty panels would be placed around the circumference of the escape pod. Each panel covered six degrees of arc. One special panel containing the airlock door was already in place. The panels around the circumference of the spacecraft were full panels. On the rows above and below there were further rows of sixty panels tapered towards a pole of the spacecraft. The panels at higher and lower latitudes of the spacecraft needed to be smaller. They would have to be trimmed down to trapezoidal shapes.

One of the most time-consuming aspects of the build was coming up with all the balloons that would inflate to determine the final shape of the spacecraft. There were literally thousands of balloons that had to be manufactured.

Navigation

Eileen wasn't sure the idea would work. The navigation system was all theoretical and untested when she left, and it was a key system for her voyage. But it was based around a known technology. The navigation system seemed to work in computer simulations, but simulations weren't real life. She had built a 1/10 scale model of it in her gymnasium and used it to track the wildlife in the area.

The system consisted of a set of panels mounted on the surface of the Mr. Bubbles, a navigational computer that interpreted signals discovered by the panels, and a specially designed spacesuit helmet.

The panels had multiple purposes like many of the things required for the space voyage. They acted as a shade to block out intense radiation and help cool the escape pod at the core of the spacecraft. The panel system was also a giant mechanical filter for interstellar signals. She would be positioned at the centre monitoring for signals. It worked in a manner like Cerebrax the famous telepathy filter / amplifier. At the centre of Cerebrax was a liquid cooled helmet which increased brain capacity. In the case of her spacecraft she was travelling primarily cryogenically so the necessary cooling equipment was already present. The navigation system would allow her to detect a planet with intelligent life on it, or rather life on it like her own. Once she detected a planet with life on it, she could focus in with the radio system and look for

technology. She wanted to go to a planet that at least had radio technologies but would settle for anywhere supporting life like herself.

Eileen tested the navigation system including the cryogenics by taking a six-month sabbatical from her regular work and suspending herself in the cryo-chamber for six-months. She marvelled at how fast the time seemed to pass. Even when in cryo-stasis her mind would still work at a greatly reduced rate. The navigation system fed her information in the form of dreams and she could control the spacecraft using pseudo-telepathy.

Panels

Eileen decided to manufacture panels of the spacecraft from an adamantium alloy. Adamantium was little known outside of military circles, but she knew all too well about it from first-hand experiences. It was deemed not that useful a material in industrial circles because it was too difficult to work with.

Pure adamantium was virtually indestructible when once cooled from its molten form. For her purposes it wasn't a usable material. She needed to be able to cut and weld pieces of sheet metal for her project. Fortunately, she knew of an adamantium alloy that was extremely strong that could still be manipulated using a high-powered laser welding torch.

She contacted a steel panel fabricator and worked out a deal with them to fabricate panels made of a custom alloy.

"Add this bag of "magic sauce" to the alloy mix and don't let the mix cool down." Were her instructions. The magic sauce was refined adamantium ore.

The panels were very thin. Each panel had two paper thin surfaces made of an adamantium alloy. The two surfaces were waffled together. The panels looked like a piece of cardboard, but they were very strong and durable.

The panels were about 3 meters by 4 meters in size. The panels were only about 6 milli-meters thick. She ordered the panels all the same size from the manufacturer, so she could get a quantity discount. They could have come pre-cut but that would make storing and transferring the panels more difficult. Eventually, she would have to cut the panels to the correct shape. Given the adamantium alloy the panels were made of they were a pleasant tan color.

The first thing she did with a few of panels was make several boxes to use as shipping containers including a box for the space capsule. When boxed the capsule was non-descript; just a big rectangular box. That's all that people would see.

Blinky, Inky, Pinky and Clyde

Each of the probes were about the size of a basketball. Eileen had managed to assemble four of them in time for expedition and decided to color them and name them after the ghosts in Ms. Pacman. Blinky, Inky, Pinky, and Clyde. The color of the paint could be made to vary depending on an electric charge and they could be made to flash slowly just like the ghosts in pacman. At the core of a probe was a three-dimensional iron cross which could be charged to allow a magnetic field in different directions. The probes moved via magnetics or small thrusters using pressurized gas. The probes onboard computer had some intelligence allowing to some capacity to manoeuvre autonomously. The probe had a high-resolution camera and communications equipment onboard and were powered by a small nuclear battery. The probes could pick up audio signals and had speakers allowing two-way audio communications. Finally, the probes had a compartment allowing them to transport small items.

The probes were a multi-purpose tool like many parts of the spacecraft and formed part of the arsenal for the spacecraft. They could be made to explode if need be, by overloading the nuclear batteries.

Eileen had heard about so called quantum entanglement transceivers, but they weren't a building block available in her toy box. She would have to make do with regular radio equipment.

Although quantum computers hadn't been invented yet, transceivers based on quantum entanglement effects had been. Such transceivers allowed instant communications over any distance. The problem with the transceivers was that they only operated in matched pairs.

Food and Water

Eileen knew it wouldn't be comfort cuisine, but it would work. It would keep her alive and hopefully in good health. She planned her food supply as a bunch of small pills. She needed a supply of food for up to 300 years and at the same time it had to occupy a minimal amount of area on the spacecraft. After a while of recycling waste it would lose its nutritional value. Since

she planned to travel sleeping cryogenically most of the time she really needed only about 1/30 the food. Or enough for 10 years. With luck she would find a new home long before 300 years passed. In theory she didn't have to eat. Her super-healing would keep her alive. She had starved at some points in the past but never for such a long time. So, she didn't want to find out the hard way how good her healing factor was.

Water was heavy, but also necessary. Eileen's water supply would be contained in adamantium alloy flasks, allowing it to be under high pressure. She planned on cycling the water supply several times during the trip. Because it was impractical to transport all the water needed for a 300-year flight Eileen decided to build a waste-water recycler. The waste water recycler consisted of a couple of compartments to contain the waste and a modified microwave oven to purify the water.

Armaments

Eileen wasn't anticipating encountering anybody else during her long voyage, but she knew to prepare for the worst while hoping for the best. That's why she decided to incorporate a laser cannon as part of the spacecraft. The laser cannon was military grade, the kind they installed on embassy rooftops. She'd managed to finagle a couple of units a few years ago.

Power Supply

Primary power for the spacecraft was from a miniature nuclear reactor. The reactor was about the size of a small bookcase and located in the floor of the escape pod. Above the reactor was a lead plate designed to reduce the amount of radiation entering the escape pod.

Space Suit

The suit was a standard average priced space suit from one of the manufacturers. She had modified the helmet by adding a heads-up-display (HUD). The Hud was a miniature projection TV with an image focused a few inches in front of the helmet. The projector could be wired into the capsules systems. She needed to be suited up in the escape pod. She was travelling in the escape pod to the ark. This was not recommended. But she didn't want the expense of using a separate seat on the rocket.

One was responsible for one's own well being if travelling in an escape pod. It took a couple of days to mount the escape pods on the rocket and make sure all the safety procedures had been followed.

Super-pressurized air. Adamantium based materials made all sorts of interesting gadgets possible. Since the materials were virtually indestructible it could be used for a flask to contain air pressurized to many atmospheres.

She used as king's fortune worth of adamantium. Her escape pod may just be the most expensive object on the planet. It was a good thing she'd had the better part of a thousand years to prepare. Most of the pod was disguised as other innocuous materials. She did not want people asking questions about the makeup of the pod, or worse yet trying to steal parts of it.