



DOTM

The Symbol of Freedom
on the Moon

Introduction

We present an ambitious project — to place a symbol of freedom on the surface of the Moon. The goal is to leave a large-scale image on the Moon, visible from Earth to every person without the need for a telescope, simply by looking up at the sky. It cannot be banned or removed. This is the only project in the world dedicated to freedom of speech and self-expression. The symbol we will create will be chosen by the community of our project.

The project involves a number of highly complex scientific and technological challenges that go beyond the current capabilities of the space industry. We plan to engage the international community of engineers, scientists, students, and enthusiasts to work on solving them. From an organizational perspective, the project will operate as a commercial company rather than a charitable foundation: funding is expected to come from membership fees in a dedicated club, merchandise sales, advertising, and funds raised through promotional campaigns. This approach means that anyone will be able to contribute and become a kind of “co-participant” in the mission, while we remain free from the limitations of a foundation.

As part of the project, all scientific and technical results will be published under open licenses, ensuring they can be used by any company or enthusiast. In this way, we will contribute to the development of the global aerospace industry, giving all countries the opportunity to advance in space exploration and address scientific challenges here on Earth.

The idea of drawing images on the Moon may seem fantastic, but there have already been similar developments in history. In 2020, a group of students created a concept for a rover capable of engraving small inscriptions on the lunar surface, and this project was recognized in a NASA competition. Our project goes even further — instead of isolated personal inscriptions, we aim to create a monumental symbol, understandable to the entire world, that will become a powerful expression of freedom and creativity.

This document presents a detailed implementation plan: it outlines the goals, describes the technical solutions, the community engagement strategy, the financing model, and the estimated resources. Our aim is to demonstrate that our endeavor is both feasible and worthy of support from the global community.

Project Goals and Vision

The main goal of the project is to physically create an image of the symbol of freedom on the visible side of the Moon using autonomous rovers. This symbol should be large enough to be captured from orbit or even seen from Earth without a telescope — simply by looking up at the night sky (estimated dimensions: 600 km in height, 300 km in width, with line thickness between 15–30 km). We view this as both a scientific-technological mission and an artistic-social act: essentially, the first extraterrestrial art installation in history, collectively created by humanity. While governments have left their national flags on the Moon, we — united citizens of the planet — intend to leave a different mark, free from state affiliation, expressing the pursuit of freedom for all. In fact, the symbol will not be approved by any government — quite the opposite: it will provoke in them an irresistible desire to erase it. Yet they will be unable to — because a project of such scale and seeming absurdity could never be sanctioned or funded through official budgets.

It is important that the chosen location and the scale of the symbol will allow it to remain on the surface of the Moon for virtually unlimited time. The Moon has no atmosphere, no wind, and no rain, so tracks and engravings are not destroyed by erosion. It is well known that even the footprints of astronauts and the tracks of Soviet lunar rovers from the 1970s are still visible in orbital images of the Moon. Similarly, our symbol can remain unchanged for thousands of years — a message to future generations. Thus, the project also carries a philosophical vision: it will leave a material artifact on another celestial body, symbolizing the ideas of freedom, creativity, and international solidarity. It will serve as proof that in the era of private space initiatives, even a relatively small group of people united by a bold dream can accomplish something that once only states were capable of.

Key Technical Challenges and Solutions

To create a drawing of such scale, it will be necessary to “plow” the lunar regolith, as it becomes darker beneath the surface. The simplest way to achieve this is by deploying an automated, specialized rover equipped with a harrow capable of leaving wide tracks on the lunar surface. Given the size of the image, at least 10 rovers will be required.

To accomplish our goal, it will be necessary to develop and integrate a range of advanced technologies. Below are the key technical challenges to be addressed, along with possible approaches to their solution:

Speed. We need to design an autonomous lunar rover capable of confidently traversing the Moon’s surface at high speed—15–25 km/h (the current speed record is 17 km/h)—while also being able to “plow” the lunar surface.

Mobility. The rover will be unmanned, so it must maintain stability and controllability on uneven terrain without human input. We plan to use a modern suspension, robust wheels, and a stabilization system to prevent rollovers and getting stuck at speed.

Range. “Drawing” a large symbol requires thousands of kilometers of driving in total—orders of magnitude beyond existing rover achievements. The record distance traveled on an extraterrestrial surface is about 45 km.

Modularity. The design will be modular—for example, with the ability to disable damaged wheels or operate multiple rovers in parallel to increase mission reliability. In addition, the rover itself will serve as the drawing tool—most likely using its wheels.

The Pen. By carving tracks in the lunar regolith, the rover will “draw” the image’s lines. It may also use a dedicated plow or harrow to increase line contrast. This drawing system will be part of the development as well—we will test how best to leave a clearly visible trace in the soil (for example, 5–10 cm deep so that sunlight and shadows make the pattern discernible).



Navigation. Automated symbol drawing requires precise lunar navigation without satellites.

Resilience. We must develop systems that can charge from sunlight without overheating at daytime temperatures of $\sim +120^\circ\text{C}$, and operate on batteries through the lunar night at $\sim -170^\circ\text{C}$. This includes advanced thermal management and power storage solutions.

Engineers around the world are already working on solutions to these challenges. For example, Japanese researchers have proposed using contour heat pipes that consume no energy, allowing excess heat to be dissipated during the day and stored for the night. We will study such innovations, fund research groups, and integrate the best solutions into the DOTM rover. The cost of solving these challenges is currently estimated by our engineers at approximately \$420 million.

Delivering Equipment to the Moon. Another major challenge is transporting our rover (or rovers) to the lunar surface. This requires a launch vehicle and a lander module. In recent years, private companies have emerged that offer lunar delivery services for a fee (e.g., NASA's CLPS program). For instance, the American company Astrobotic is developing the Peregrine and Griffin landers, quoting a rate of about \$1.2 million per kilogram of payload delivered to the Moon's surface. In 2024, NASA signed a contract worth roughly \$200 million with Astrobotic to deliver the VIPER rover to the Moon's south pole.

These figures illustrate that transporting heavy equipment is a costly undertaking. Our rover will be relatively massive (several hundred kilograms, accounting for batteries and equipment). Even with careful mass optimization, including the lander and required fuel, the payload will likely amount to several tons.

Thus, launch and landing costs will represent a significant share of the project's budget. The first stage of delivering a single rover is estimated at around \$150 million, while the delivery of all 10 rovers would amount to roughly \$1.2 billion.

Ground Support. The project is designed to be as automated as possible, minimizing the need for intervention from Earth. However, based on international experience, such interventions do occur. Navigation systems, server infrastructure, and communications will still require the support of specialists. This is estimated at \$15 million for the entire duration of the mission.

The full cycle—from design to operation—will demand the integration of a wide range of engineering disciplines: electronics, mechanics, programming, radio engineering, and materials science. We intend to make the project as open as possible for collaboration with external experts, universities, and companies, bringing together the best solutions for each challenge. Each component will undergo prototyping and rigorous testing on Earth: for example, rover mobility trials on simulated lunar soil, thermal-vacuum chamber tests for electronics, and validation of autonomous navigation algorithms in analog environments (such as deserts resembling the lunar landscape). The outcome of this technical marathon will be a fully developed spacecraft (or spacecrafts), ready to carry out our unique mission.

Engaging the International Community

Our project has been conceived from the very beginning as open and international. We are reaching out to the entire world — engineers, scientists, inventors, students, and all those who care about freedom of speech and self-expression. To those who are tired of “green funds” raising hundreds of millions of dollars while doing nothing meaningful — or even fun — we say: we will bring everyone together, calling on them to join in solving the challenges described above, in what may become the greatest joke in history.

One of the project's key objectives is to build a large community where every person, regardless of academic degrees or technical skills, will not only be a financial supporter but will also feel directly involved in this bold endeavor. Each participant will be able to sit on the porch with their child on a summer evening, look up at the sky, and say: “I was part of the team of like-minded people who changed the world.”

First and foremost, the company will establish an online community — an online club. Membership in this club will involve a small paid fee, which will contribute to achieving the project's main goal. More importantly, it will serve as a filter, distinguishing truly committed participants from internet trolls and those with only a superficial interest.

Organizing promotional campaigns, hackathons, and online events will be one of the project's core activities alongside rover development and delivery. These efforts are aimed at drawing global attention to the company's mission and spreading the message to every inhabitant of the planet: freedom cannot be silenced.



Project Financing and Required Resources

Financial Model: The project will be financed primarily through public support in the form of commercial activities. In other words, we are not asking for charitable donations, but rather offering everyone the opportunity to contribute by joining a dedicated club or purchasing symbolic merchandise. Club membership will come with privileges: early access to project updates, the right to influence certain decisions (such as choosing the final symbol design from proposed options, excluding prohibited variants), and the chance to immortalize one's name (for instance, engraving the names of key sponsors on rover components or placing them in a capsule left on the Moon). Additional revenue streams will include the sale of merchandise — T-shirts, badges, rover models, posters, and other branded items. We will focus on online distribution channels, as they provide global reach and higher margins by minimizing offline logistics costs. Beyond this, we plan to organize various promotional campaigns and

crowdfunding initiatives. Examples include online fundraising marathons, paid live streams of rover testing, and NFT collections of unique art objects related to the mission (a modern method of digital content monetization). We believe the inherently viral nature of the idea — drawing a bold symbol on the Moon — will naturally attract global media attention, which can then be converted into significant financial support.

Since the required budget is significant (see below), it may be difficult to proceed without major sponsors. We are open to negotiations with patrons and companies that may wish to be associated with our project. However, it is important to maintain balance: we do not want to turn the mission into a mere advertising platform, especially given the potentially provocative nature of the symbol. Therefore, sponsor logos may appear on the launch vehicle or in media content, but not on the lunar symbol itself. Ideally, the majority of funding will come from a large number of small contributions from ordinary participants — ensuring that the project truly remains a people's initiative. At the same time, we are considering all opportunities, including grants for the scientific components of the mission (for example, funding from certain foundations to support the development of new energy storage technologies).

Estimated Budget: We have made a preliminary budget assessment based on the costs of similar developments and services. Below is a rough estimate (intended only to illustrate the order of magnitude): Rover Development and Testing: ~\$50–100 million (prototype creation, engineering labor, manufacturing of flight-ready units, test facilities, and lunar condition simulators). For reference, NASA spent around \$450 million developing its VIPER rover — we expect to keep costs lower through commercial efficiency and international in-kind contributions, but the figure will still amount to tens of millions.

Lander Module and Lunar Launch: ~\$150–200 million (contracts with a launch provider and a lander company). Pricing from commercial providers and past experience supports this estimate: for example, the contract for the Griffin lander (for VIPER) was \$323 million, while lighter CLPS missions cost around \$75–100 million. Our case is closer to the heavy end, though the emergence of new launch vehicles (such as Starship) could potentially reduce delivery costs. Mission Infrastructure and Operations: ~\$10–20 million. This includes establishing a mission control center, communications equipment, leasing of a deep space network for connectivity, data processing, and risk insurance.

Reserve and Contingency: ~\$30+ million. Space projects often exceed their initial budgets, so we include a buffer. Additional equipment backups, extended testing, and unforeseen technical challenges may also be required.

Total Estimated Budget: ~\$1.635 billion USD. This is a large figure, but it should not be intimidating when distributed across a global community. With diverse monetization methods — advertising, memberships, merchandise — the target can be achieved if no more than 250 million people contribute an average of just \$1 over the entire project period.

For the world as a whole, this is a negligible amount. With further support from corporations, space enthusiasts, and major patrons, the goal becomes even more attainable and realistic — especially considering the broader contribution this project will make to the global community at every stage.

We understand that reaching such figures is not a task for a single year. Therefore, financing will be structured in stages:

- Stage 1: A few million dollars will be sufficient to conduct R&D and build prototypes.
- Stage 2: Successful demonstrations will build trust and enable the attraction of larger investments for manufacturing the final spacecraft.
- Stage 3: In the lead-up to launch, institutional investors or strategic partners may join in.

The flexibility of our commercial model (unlike government agencies bound by rigid budget categories) allows us to allocate funds where they are most needed at each stage.

It is important to emphasize that we are a commercial company, not a nonprofit foundation. This has a direct impact on financing: by contributing money, people are effectively purchasing goods and services (membership, merchandise, potentially digital assets), rather than making a charitable donation. This gives us greater freedom in budget management.

Moreover, once the primary mission (drawing the symbol) is completed, our rover and infrastructure will remain on the Moon and may be repurposed for commercial services in the future.

Project Implementation Stages

Since exact timelines will depend on funding, we define the project stages in functional terms rather than calendar dates. Below is the step-by-step action plan:

Stage I

Preliminary Research and Conceptual Design. At this stage, the core team is formed, technical requirements are refined, and all necessary analytical studies are carried out. This includes: Analysis of the lunar surface to select the drawing site; Calculation of the trajectory for creating the symbol; Modeling of the rover's energy balance; Exploration of alternative system architectures

A detailed technical project ("white paper") describing solutions for all subsystems, a work schedule, and a budget estimate. By the end of this stage, we will also identify key partners (universities, companies) and — most importantly — demonstrate proof of concept. A virtual rover prototype and a mission simulation will be created.

Stage II

R&D and prototyping. This is where the practical work begins: manufacturing individual components and testing them. A prototype of the lunar rover (either full-scale 1:1 or initially a reduced version) will be built and tested on Earth. We will create a test stand simulating lunar soil, verify the mobility system (whether the wheels can provide the required speed and maneuverability), and test the power system in a thermal vacuum chamber to withstand the 14-day temperature/darkness cycle.

In parallel, the software is being developed — first in simulations, then on the actual prototype, which will operate on a test site (in a desert or a cooled dome replicating lunar conditions). At this stage, we will also begin assembling elements of the landing module, practicing the rover's deployment from the ramp, and verifying communication compatibility. By the end of this phase, we should have a flight-ready design — the final configuration of the rover and all its systems, prepared for manufacturing. In addition, we will produce a complete mission documentation package (from flight plans to contingency procedures).

Stage III

Manufacturing and launch preparation. After successful testing, we move on to producing the flagship rover (along with a backup unit in case of unforeseen issues). The rover is assembled in a clean room, with full integration of all subsystems. At the same time, the contract with the launch provider is finalized: a rocket is reserved, and the lander is built according to our requirements.

The rover undergoes final inspections, battery charging, and fueling if necessary. It is then integrated with the landing module (mounted inside or attached to the side of the lander). The entire system goes through compatibility testing. During this period, the mission control team writes final flight scenarios, trains on simulators, and coordinates data exchange with the launch provider.

Several months before launch, all hardware is delivered to the cosmodrome. The launch vehicle (for example, Falcon 9/Falcon Heavy or another) undergoes prelaunch preparations. Finally, on the scheduled day, the launch takes place. Our spacecraft sets off for the Moon – first entering Earth orbit, then accelerating into a transfer trajectory. In about 3–5 days, it will reach lunar orbit.

Stage IV

Lunar landing and mission start with a single module. The lander will perform braking and a soft touchdown at the designated site on the lunar surface. Rover deployment follows: ramp deployment and the rover's descent onto the ground. Next comes system checks and navigation calibration. Once everything is ready, the main operation begins – drawing the symbol. The trial operation phase may last from several weeks to several months, depending on the size of the image and the rover's speed/operating mode.

Stage V

Scaling. After testing the first rover in real space mission conditions, the technical solutions are refined. Errors are corrected, and subsequent rovers are optimized. This is followed by a large-scale but phased deployment of nine more rovers, two at a time. Each deployment cycle includes a lessons-learned phase, error correction, and implementation of best practices. Once all ten rovers have been delivered to the Moon, a long phase of drawing the symbol on the lunar surface begins. This stage includes continuous mission support from Earth.

The DOTM project combines the audacity of a dream with the rigor of engineering thought. We set out to accomplish what until recently might have seemed absurd – to draw a symbol on the Moon – and turned this idea into a concrete action plan. Through our white paper and research, we are increasingly convinced that the project has real chances of success, provided that passionate and talented people from around the world take part. Yes, we will face many challenges – technical, financial, and organizational. But great achievements have always seemed impossible until they were accomplished.

We are already witnessing support and enthusiasm from the community. The future success of the project depends on each person reading this document. Join us – as an engineer, a scientist, a sponsor, or a member of our club. Share the project with like-minded people around the world. The more people get involved, the more real our “impossible” dream will become. And one day in the near future, when we look up at the Moon and see a familiar symbol there, we will all be able to say: “We did this.” That symbol will stand as an immortal proof that the thirst for freedom and creativity knows no boundaries – neither national nor planetary.

Together, we are drawing history!