

RUKMA VIMANA DESIGN AND ANALYSIS

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Abstract— Ancient ancestors had 12 strand DNA, hence had more intelligence than modern humans. Sanskrit documents contain advanced science and technology in them, which are documented by ancient ancestors. In the process of giving their valuable information to the next generations of human race, Maharshi Bharadwaja and several other ancient scientists or Rishis provided us Texts like Vimana shashtra. This paper describes modern day rediscoveries and Reinventions from Vimana shashtra. Our team SWASTIK (Scientific works on Advanced Space technology Investigators for Knowledge) is a group of researchers working on lost advanced ultimate ancient technology. SWASTIK team works on different types of vimana to make vimana prototypes, their propulsion systems, modern software works such as 3D modeling design of vimana and aerodynamic, thermal analysis, and ancient materials properties for advanced space radiation are described in this paper. Rocket Launch Technology of ancient ancestors are more highly advanced than compared to modern technology. Raja Loha, A high-heat-absorbing alloy used for the bodies of various flying crafts, preparation, and properties of each material in its compositions are also mentioned in the paper and also describes our research works on Rukma vimana, which reveal that it is an advanced interplanetary Vedic space vehicle.

Keywords— Vimana, Antigravity propulsion, CFD analysis, Thermal analysis, Rukma vimana Prototype.

I. INTRODUCTION

There are three types of Vimanas mentioned in Vimana shashtra classified depending upon the importance: Maantrika, Taantrika and Kritaka. All these are described and designed by analysing the resources available in earth and also depending on the Human intelligence. Rukma Vimana is one of the kritaka Vimanas and it is similar to a rocket. Rukma Vimana had long vertical ducts with fans on the top to suck air from the top and send it down the ducts, generating a lift in the process. Utilization of electrical energy to operate Electro-Mechanical arrangement to enable vimana to lift off and accelerate Directional control is through conventional rudder system provided at the base ^[1].

The following points are important events in history describing modern day works on ancient Sanskrit texts:

1) According to ancient astronaut theorists, Buddha had extra-terrestrial contact and visited to earth from Vimana, and when Ashoka was educated by Buddha, he had to hide the knowledge and keep it secret to avoid world's destruction by Evil people. Ashoka and secret society of 9 unknown men is still a mystery. Shivkar Bapuji Talpade, was Sanskrit scholar during the British rule. He attempts to reconstruct ancient vimana using ancient propulsion. Maharaja of Baroda witnessed the event of flying his Marutsakha vimana. Later some of the witness and his vimana were destroyed by evil people. Before World War II, Hitler and his team worked on Ancient texts which include Ancient Indian Sanskrit texts also. Nuclear weapons, Mercury vortex engine and Bell shaped flying object named De Glocke have been

similar to Ancient Indian technology. Few years after the war, Blue Prints of Antigravity Flying machine were found.

- 2) NASA Recorded the Sacred Hindu OM Sound from Sun's Atmosphere. Ancient Sanskrit texts mentioned that sun chants OM, and some texts describe that every atom bonds with another atom with the frequency of sound OM. Sanskrit is declared that it is the perfect language and can be used in Artificial intelligence ^[2].
- 3) Nikola Tesla was influenced by Swamy Vivekananda and learnt Sanskrit terms from him to read the texts. He tried to invent many things mentioned in ancient Indian technology texts and took patents. Some of his inventions are Aerial Transportation vehicle which is similar to Rukma vimana and also Tripura Vimana. This is VTOL aircraft. There are free energy Motors and generators mentioned in Vimana shashtra. According to the studies, Tesla tried to invent Free energy generators ^[2].
- 4) Modern scientists Reinventions from Sanskrit texts indicate the value of texts. CSR Prabhu invented following things: Materials such as Raja Loha, Tamogarbhaloha, Pancha Loha, Araara Tamra, and Badhira Loha. Glasses such as Vidyutdarpana, Ravishakti apakarshana Darpana, Ushna Shakti Apakarshana Darpana and Vimana Device, Vakra Prasarana Yantra. Professor Sharon Invented Chumbak Mani and N. G. Dongre invented Dhvantapramapaka Yantra. Ancient Nano technology related inventions are done and by Sri Maharshi Research Institute of Vedic Technology. They invented a novel process of preparing nano metal and the products thereof ^[2] ^[3].

Throughout the history there have been attempts to reinvent ancient Indian technology, and now in the 21st century humans are successful in reinventing. Hence proving the texts as non-mythological and high advanced technological. Our team SWASTIK- (Scientific works on Advanced Space technology Investigators for Knowledge) is group of researchers working on Vimana technology^[4]. Rukma Vimana's Manufacturing, Structures, propulsion, aerodynamics, Space mechanics are described below.

II. RUKMA VIMANA STRUCTURES

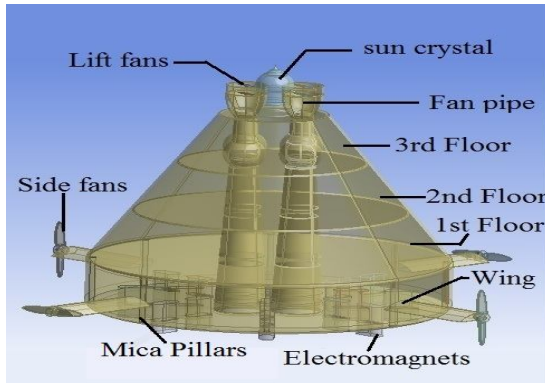


Fig.1. Various parts of vimana

The 3D model of Rukma vimana is developed based upon descriptions of Vimana in Sanskrit texts and also by referring to Drawings made by Yellappa guided by Pandit Subbaraya shasthry. For 3D modelling, Rukma vimana is divided into following parts:

- 1) **Rukma Vimana main body:** All the floors of vimana are 20 feet high, ground floor containing landing gears, electromagnets and wings. Whereas remaining floors are passenger cabins. According to Vimana texts, third floor is used as cockpit for pilots. There are goblet shaped cup like structures at the top of vimana in order to fix propellers or lift fans inside them to suck the air from top. Sun crystal is Dome shaped on the top of vimana third floor placed in centre of all the goblet shaped cups. There are four Wings of vimana around the circumference of the ground floor. There are slots provided for locating the Electromagnets in assembly.
- 2) **Propellers:** There are 8 propellers for Rukma vimana

Table1: Vimana Propellers Details

Propellers	Location	Purpose
4 Lift Fans	Above third floor of vimana, in goblet shaped cup like structures	Sucks air from top of vimana for lift
4 Side Fans	At the end of 4 Wings extension with movable mechanisms	for VTOL and direction control of vimana

- 3) **Fan pipes:** Wires run through fan pipes from 4 lift fans or propellers and are connected to motor at third floor of Vimana.
- 4) **Mica pillars:** 8 Mica pillars are located at ground floor of vimana, pillars are 20 feet long support from which third floor is constructed.
- 5) **Electromagnets:** There are 8 pairs of electromagnets arranged 45 degrees from central axis of each pair.

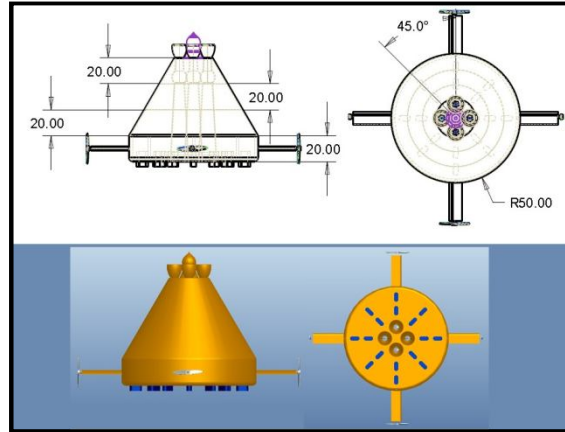


Fig.2. Assembled Rukma Vimana and Dimensions^[6]

III. MANUFACTURING MATERIALS

RajaLoha is used to make Rukma vimana, this material is deciphered by modern day scientist CSR Prabhu. RajaLoha means king of all metals. The term RajaLoha was used for the resultant material obtained by combining various metals and herbs. In order to protect from heat and radiations, the alloy was used for the bodies of various flying crafts in ancient times.

Raja Loha material compositions and descriptions:

- Ammonium chloride: NH₄Cl
- Bengal gram:

Table2: Bengal Gram Composition

Constitute	Composition
1) Calorific value	350 (cal./100 g)
2) Crude protein	26.2 percent
3) Fat	1.2 percent
4) Carbohydrate	56.6 percent
5) Calcium (mg)	185 (mg./100 g)
6) Iron (mg)	8.7 (mg./100 g)
7) Phosphorus (mg)	345 (mg./100 g)
8) Vitamin (mg)	
a) B ₁	0.42 (mg./100 g)
b) B ₂	0.37 (mg./100 g)
c) Niacin	2.0 (mg./100 g)

- Lodhra plant: It is used in RajaLoha to protect the humans inside the vimana from diseases caused by Space Radiations.
- Benzoin: C₁₄H₁₂O₂
- Lead: [Xe] 4f¹⁴ 5d¹⁰ 6s² 6p²
- Sea-foam: Sea foam, ocean foam, beach foam, or spume is a type of foam created by the

agitation of seawater, particularly when it contains higher concentrations of dissolved organic matter (including proteins, lignins, and lipids) derived from sources such as the offshore breakdown of algal blooms.

- Iron pyrites: The mineral pyrite, or iron pyrite, also known as fool's gold, is an iron sulphide with the chemical formula FeS_2
- Iron: chemical element with symbol Fe (from Latin: ferrum) and atomic number 26. Electron configuration [Ar] $3d^6 4s^2$
- Mercury: Electron configuration [Xe] $4f^{14} 5d^{10} 6s^2$
- Natron, $NaHCO_3$
- Salt-petre, KNO_3
- Borax: $Na_2B_4O_7 \cdot 10H_2O$
- Mica: Chemically, micas can be given the general formula $X_2Y_{4-6}Z_8O_{20}(OH,F)_4$ in which X is K, Na, or Ca or less commonly Ba, Rb, or Cs; Y is Al, Mg, or Fe or less commonly Mn, Cr, Ti, Li, etc.;

Z is chiefly Si or Al, but also may include Fe^{3+} or Ti. Structurally, micas can be classed as dioctahedral (Y = 4) and trioctahedral (Y = 6). If the X ion is K or Na, the mica is a common mica, whereas if the X ion is Ca, the mica is classed as a brittle mica.

- Silver: Electron configuration [Kr] $4d^{10} 5s^1$
- Aconite: $C_{34}H_{47}NO_{11}$
- 5 sweets: curd, milk, ghee, sugar, honey mixture give result in golden colour thick paste.

After observing the composition we can understand that ancient manufacturing process was also eco-friendly and because of the extinct plants/trees in modern day, we will have to replace them with other substitutes which can be similar to it. In order to understand the Vimana materials and similarities with modern available materials, our SWASTIK team did Thermal analysis on 3D model of Rukma vimana. Each time different material is used for the vimana, such as Copper, silver, gold, mica, titanium, tungsten and ceramics. Input values taken are: Heat Flux = $500 W/m^2$, Convection = $500 W/m^2 \cdot ^\circ C$, Radiation = 1, Temperature = $1000 ^\circ C$. Convection and Radiation are applied to all faces of vimana but Heat flux is applied to the shell part of three floors of vimana where the passengers and pilots are seated.

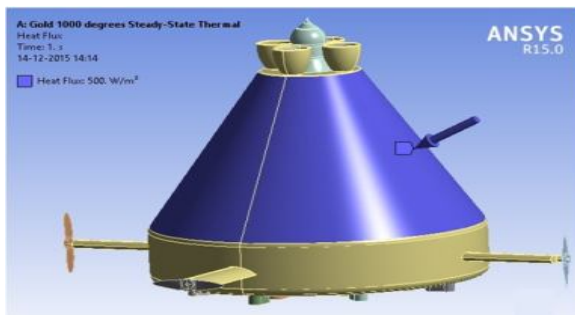


Fig.3. Rukma vimana Meshing and Heat flux applied on passenger cabin surface [7]

Table3: Thermal analysis results

Metals	Max Temperature	Max Heat Flux	Max Directional Heat flux
Copper	1001	540.41	430.89
Copper alloy	1001	521.23	431.6
Silver	1001	543.71	451.14
Gold	1000.6	428.7	329.2
Mica	1001.1	2.8175	2.1121
Titanium alloy	1001	120.03	78.249
tungsten	1001	372.48	243.67

The mixture used to make Raja Loha has mica which gives less heat flux compared to ceramics. The proportions of silver, mica, lead, mercury and other materials would result in raja loha which would have properties similar to that of NASA space shuttle heat shield tiles. When these mixtures are taken in exact proportions mentioned in texts we get the perfect raja loha and it can be used for Modern space vehicles.

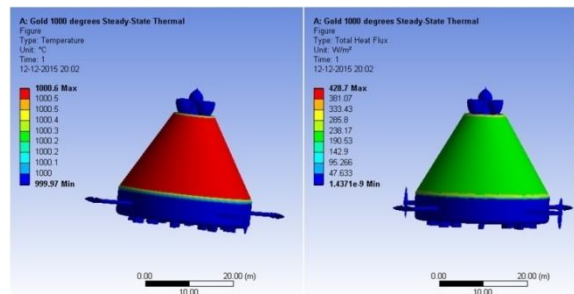


Fig.4. Thermal analysis Results of vimana when material is gold.

IV. AERODYNAMICS

Computational Fluid Dynamics Analysis is carried out for Vimana model as well as Rocket model with the same input values:

Gauge pressure, Mach number and Velocity

Table4: Input Values for CFD analysis

Vimana and Rocket Model input values	Gauge pressure	Mach Number	Velocity
	0	0.6	208.2526

Vimana and Rocket Analysis Results

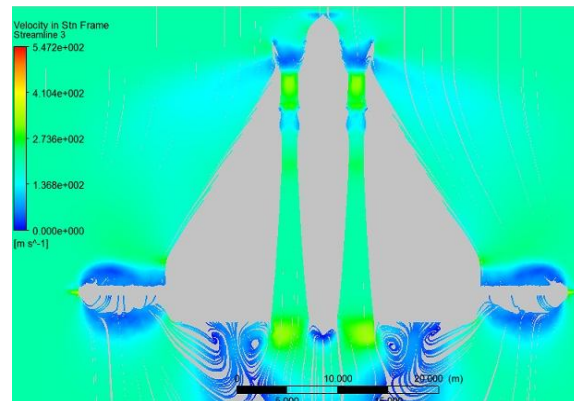


Fig.5. Velocity Streamlines of Rukma Vimana and Rocket

By observing the results of CFD analysis, Velocity at the bottom of Vimana is found to be Greater than that of Rocket.

Table5: Values of CFD results

	Location: At The Bottom	
	Velocity range (m/s)	Static Pressure Range (Pascal)
Vimana	2.73e+002 to 4.10e+002	-3.98e+04 to -5.93e+04
Rocket	7.28e+01 to 3.64e+01	-8.79e+02 to -1.23e+04

V. PROPULSION

- 1) Rukma vimana extracts electricity from sun through sun crystal located at the top of vimana^[5]. Sun crystal absorbs more electricity from the sun when compared with modern-day solar panels. Hence it was more efficient and advanced than solar panels known to us. The procedure of electricity extraction from sun, has been deciphered by our SWASTIK team. The 4 electrodes, electrolytes, acids located inside the sun crystal perform electrolysis process and supply to the motors of vimana through fan pipes in which electric wires are contained.
- 2) There were no space vehicles at the time when Yellappa drew the vimana diagrams guided by subbaraya shashtry. There are electromagnets mentioned in the Figures of vimana, which are earlier than today's NASA news that says "Electromagnetic drive propulsion is possible" Nikola Tesla made attempts to create free energy generators and antigravity VTOL vehicles with the inspiration and reference of Vimana texts. Swamy Vivekananda helped Tesla to understand sanskrit texts and its technical terms^[2].
- 3) Tesla's works describe that excess electricity to an object will lift which is antigravity propulsion or levitation. Purpose of electromagnets in Vimana may indicate such type of propulsion. Tesla also worked on free energy concepts with the help of ancient Sanskrit texts. Vimana has motors and generators which is mentioned in vimana shashtra. Tesla's works on free energy generators and motors might give a clue on how the ancient ancestors tapped free electricity from ether. Free energy concepts have been neglected and avoided by many countries but recent invention from India describes free energy generator which gives more than 200% efficiency by taking power from vacuum^[11].

Propulsion part of vimana is not decoded but after more research, modern humans may be able to reach it.

VI. SPACE MECHANICS

The wing like structures of Rukma vimana are located such a way that it can be swept back and also

rotated to act as a fin for vimana during VTOL. Numbering the vimana wings starting from positive X axis, clockwise manner numbering as described in following figure.

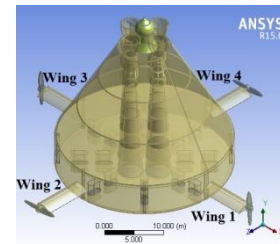


Fig.6. Vimana wing numbers for direction control description

Table6: Vimana manoeuvres

Direction of movement	Wing number as shown in figure	Wing Rotation	Sweep back
+x	2 and 4	No rotation	-x direction
+y	1, 2, 3, 4	90°	-y direction
+z	1 and 3	No rotation	-z direction
-x	2 and 4	No rotation	+x direction
-y	1, 2, 3, 4	90°	+y direction
-z	1 and 3	No rotation	+z direction

The positive Y direction movement of vimana is VTOL. 4 Wings rotate 90° and act like fins of rocket by its sweep back positioning.

VII. RUKMA VIMANA PROTOTYPE: MRV UAV

A 15/15 cm prototype of Rukma vimana has been designed by our SWASTIK team.

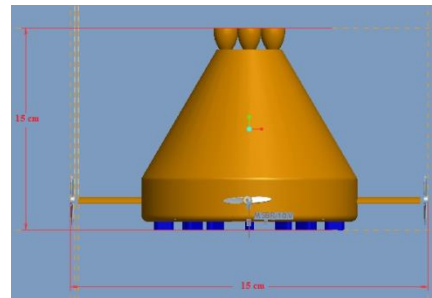


Fig.7. Rukma vimana Prototype model Pro-E design

In order to do practical works on Rukma Vimana and to implement the advanced features of Rukma vimana, in modern day UAV, starting with small scale projects, MRV UAV (Mini Rukma Vimana Unmanned Air Vehicle), using the scaled dimensions of Rukma vimana and propellers lift mechanisms with motors, propellers and batteries. Our Works on Rukma Vimana Prototype, MRV UAV Project was selected to National Aerolympics 2014, Aeronautical Society of India and Won best team award^{[8][9]}.

Parts of MRV UAV:

1. Lift fans: Lift fans are the main part of the UAV. They can be used to go through mountainous regions. And fans are preferred other than wings for Vertical

take-off. The lift fans configuration is similar to Rukma vimana Mentioned in Vimanika shasthra.

2. Camera: The cameras can be used to record the video of path the UAV is going through or any disastrous incidents can be captured and help the situations.

3. Object collector: They can be used for defence purposes, delivering the medicine to the soldiers through object collectors.

4. Landing gears: The main purpose of landing gears is to make the UAV land in any desired location.

Advantages of MRV UAV in comparison with other UAVs are as follows:

- Based on Analysis for VTOL, UAVs are having lift fans embedded in Wings. But this MRV UAV has simpler configuration, enabling the UAV to lift off with fans provided at the top of the UAV directly connected to the base of UAV with the help of Ducts.
- The Direction control can be achieved by operating the manoeuvring fans acting as propellers.
- The UAV can move 360 degrees in at mid-air in single position.
- It can not only land anywhere but also move on ground for various purposes^[10].

Mechanisms: The Vimana prototype is having 8 propellers. the propellers at the lower part, side fans are having movable mechanisms to make the VTOL of the Vimana prototype. The upper propellers or the lift fans are also enabled to produce lift. The wings add more lift to the prototype. Once the prototype is in air, the Wings can move to and fro to reduce drag force and maneuver as mentioned in table 6.

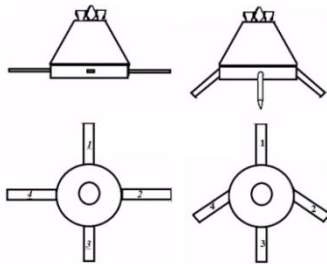


Fig.8. Rukma Vimana Prototype - maneuvers mechanisms

VIII. RESULTS AND DISCUSSION

When there are Reinvented devices and materials from vimana shasthra, then the Vimana technology cannot be neglected as it gives mankind to achieve more advanced technology. In order to benefit the mankind by giving advanced technology and Free electricity from nature, and to make vimana initially in small scale as prototypes Lab tests, 3D printing of vimana prototypes, our SWASTIK team is looking for encouragement and support for solving financial constraints to complete our dream and innovation by funding our research work. The vimana prototypes

planned by our SWASTIK team are Hybrid models of Advanced ancient vimana technology and the modern cutting edge technology. After Analysing the 3D model, CFD analysis and Thermal analysis of Rukma Vimana, we can understand that perfect Reinvention of Ancient vimana may be impossible due to the lost resources (raided libraries) and unavailable materials such as extinct species of the Flora. Thus replacing this absence with modern technology we can make the vimana 50% modern and 50% ancient, resulting in advanced space vehicle.

MRV UAV works can be carried out in following ways:

- 1) 3D modelling design of MRV UAV
- 2) Prototype with modern technology: 3D printing
- 3) Wind tunnel tests and Improvements based on results
- 4) Levitation/ Antigravity tests using Tesla lift concept (Electromagnets, electricity & lift)

CONCLUSIONS

Rukma vimana Prototype, MRV UAV is going to be a Successful VTOL. The three floors mentioned in the Rukma vimana were used for passengers, but the mini Rukma vimana UAV can make arrangements of using such place in a scaled dimension, to embed the weapons, or missiles used for Defence purposes. In scaled dimension of UAV, the lower floor can be used for location of retractable landing gears, middle floor can be used for locating missiles and weapons systems inside the UAV and top floor can be used to set the cameras. The main advantage is the 360 degrees rotation of MRV UAV which becomes easy to attack the enemy planes from the back of the UAV. This can make the UAV to attack easily and also escape from enemy planes. Not only for defence purposes but also the same MRV concept can be used for other missions such as disaster rescue mission, the place inside the UAV can be utilized for Medical equipment (First aid) objects and also food for the victims. The bottom of the UAV can be designed such a way that it can be opened at the central part (other than landing gear belly) in order to unlock the container of medicine or food packets. Farmers have been facing many problems due to the unusual Weather conditions, there have been UAVs helping for this purpose also. But the main advantage using MRV UAV is, it has enough space inside it and simple configuration with VTOL can provide much better facilities without the damage of UAV in worst weather conditions.

ACKNOWLEDGMENTS

Ancient Indian and SriLanka Ancestors Ravana, Rama and Krishna for giving us the History of their usage of vimana technologies in ancient times. The great sage Maharshi Bharadwaja for passing on the precious valuable treasures of knowledge to the

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