



CONCEPTUAL DESIGN AND TECHNOLOGICAL FEASIBILITY OF THE SUDARSHAN CHAKRA: A MODERN ENGINEERING AND SYMBOLIC RECONSTRUCTION

Rohit Gupta¹, Shivam Sharma²

¹Faculty of Physics, Yogananda College of Engineering and Technology, Jammu, India.

²Assistant Professor, Civil Engineering, Yogananda College of Engineering and Technology, Jammu, India.

ARTICLE INFO

Research Article History

Received: 20th November, 2025

Accepted: 29th November, 2025

Corresponding Author:

† Rohit Gupta,

Mail ID:

guptarohit565@gmail.com

ABSTRACT

In Hindu lore, the Sudarshan Chakra is a spinning disk weapon of Lord Vishnu that, in essence, stands for the combination of most intelligent discernment, most accurate measurement, and most energetic action. This article delves into the conceptual and conceivable aspects of the recreation of the Sudarshan Chakra with modern engineering principles. The paper, through the research on integrating the latest technological advancements in aerospace engineering, material science, artificial intelligence, and energy provision systems, lays a scientific groundwork for the structure, power, and control of the theoretical model. On top of that, the paper deals with the device's philosophical and ethical questions and points out how the device's importance as a symbol can be seen in the scientific progress–balance, order, and harmony of technology.

Index Terms: Sudarshan Chakra, aerospace design, artificial intelligence, plasma propulsion, ethical technology, mythological engineering.

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How to cite the article?

Rohit Gupta, Shivam Sharma, Conceptual design and technological feasibility of the Sudarshan Chakra: a modern engineering and symbolic reconstruction, ASIO Journal of Engineering & Technological Perspective Research (ASIO-JETPR), 2025, 7(1): 01-03.

I. INTRODUCTION

According to ancient Indian texts, the Sudarshan Chakra is a bright, fast-spinning circular blade weapon made of metal used by Lord Vishnu. It can eliminate evil with one single blow and then come back to the hand of the user, and thus it is a symbol of the eternal cycle of time (Kala Chakra) as well as cosmic order (Dharma). The present paper considers how to convert this mythological concept into a technical scientific one. One of the mythological features of the Chakra is self-control, which, along with AI, and homing devices for rotary-winged aircraft (UAVs), could be autonomous aerial vehicles (AAVs), laser weaponry, and AI-controlled smart and precision-guided munitions (i.e., ammunition,

guns, missiles, and other armaments used in warfare). These studies attempt to integrate mythological and philosophical traditions into metaphors for technical design and vice versa, conceive a modern Sudarshan Chakra, and examine symbolic, philosophical, and ethical aspects. Descriptions of the Sudarshan Chakra in the Vishnu Purana and the Mahabharata portray it as a rotating, radiant object that could be controlled by one's mind. Scholars such as Danielou [1] and Kak [2] interpret these divine technologies as metaphors for cosmic energy systems. In modern contexts, related technologies include plasma propulsion for orbital and suborbital vehicles [3], directed-energy weapons (DEWs) under development by DARPA [4], gyroscopic

drones capable of stable high-speed rotation [5] [6], and artificial intelligence and computer vision for autonomous targeting [7], [8]. The parallels between these systems and the Chakra's attributes provide the theoretical basis for a conceptual engineering model.

II. CONCEPTUAL DESIGN FRAMEWORK

A. Structural Design

Graphene-titanium nanocomposites make up the proposed structure, with the main body being a disc-shaped aerodynamic frame; thus, the strength-to-weight ratio is optimized. Through controlled ionization, a plasma-charged rim may recreate the Chakra's "fiery edge" in order to release thermal energy.

B. Propulsion and Control

The propulsion method can be that of a magneto-plasma dynamic (MPD) thruster with the addition of ion micro-propulsors to achieve precise motion control. Gyroscopic stabilization would be responsible for the steady rotation as well as the maneuverability at supersonic speeds.

C. Guidance System

An AI-powered autonomous guidance module may implement neural networks along with computer vision to identify threats in real-time. The quantum communication link could emulate the divine control (i.e., the belief that a supreme being, or God, governs all aspects of existence and has ultimate authority over events, both cosmic and individual) by enabling the closest possible feedback between the user and the device.

D. Power and Energy Source

The high-energy rotation and plasma emission could be powered by either a compact fusion micro-reactor or a solid-state plasma battery. To exemplify the Chakra's intrinsic brightness, an energy-absorbing layer could be made of solar nano coatings.

III. THEORETICAL ANALYSIS

A. Rotational Dynamics

By means of gyroscopic equations of motion, $\tau = I\alpha$ is used to examine rotational stability, whereby 'I' stands for the moment of inertia and ' α ' for the angular acceleration. The angular velocity for graphene composites is estimated to be able to go beyond 10^4 rounds per minute under stable torque conditions.

B. Thermal Dissipation

It is expected that the plasma edge generates temperatures that go beyond 5×10^3 kelvin. The structural degradation can be averted by means of heat sinks based on carbon nanotubes, as well as micro-channel cooling.

C. AI Performance

Simulation environments are capable of testing autonomous target acquisition and "recall algorithms" which refer to mythical behavior that is mimicked through machine learning feedback loops.

IV. ETHICAL AND PHILOSOPHICAL IMPLICATIONS

Being a divine symbol, the Sudarshan Chakra is the most obvious representation of Dharma, i.e., the right and just use of power. Electrification of any present version must follow the ethical aspects of AI, the use of non-lethal and passive defensive technologies, as well as controlled research settings. Deployment as a device to clean space debris, spacecraft protection, and energy distribution systems could be some of the possible non-destructive functions of such a design. The Chakra's indication of equilibrium and order is very important, as technological power must be in line with its moral side.

V. Discussion

An angle the framework has taken is to synthesize myth and scientific inventiveness. The attributes of the Chakra, such as autonomy, accuracy, and limitless, energy are able to direct the future technologies to be efficient, smart, and ethical. Besides, the Chakra is a symbol of the innovation cycle, thus calling mankind to employ knowledge not for ruling, but saving and balancing the earth.

VI. Conclusion

A redesign of the Sudarshan Chakra conceptually by means of contemporary technology is a proposition both technologically and philosophically. The actual fabrication is still a far-off scenario, but fathoming this archetype can be a beacon for the developments in AI-guided systems, plasma energy, and ethical tech design. The fusion of ancient wisdom with scientific probing makes the Sudarshan Chakra a perpetual emblem of the interplay between energy, intelligence, and morality-the core values for the future of maturing innovation.

VII. Rationale of the Study

Bridging Mythology and Engineering: The Sudarshan Chakra is among the most metaphorically complex items in the Hindu mythological narrative. Checking it again by means of contemporary scientific laws presents a very

unique interdisciplinary view that not only connects the past to the present but also blends the old technological imagination with the new one.

Conceptualizing Next-Generation Autonomous Aerial Systems: The main features of the Chakra, such as faster spinning, a very accurate and careful observation, and intelligent recognition of the target, could be the problems that the advanced aerospace systems, autonomous drones, kinetic interceptors, and smart weapons are facing. Hence, a hypothetical study of this might actually be a conceptual breakthrough in new engineering frameworks for highly-agile disk-shaped aerial platforms.

Integrating Modern Technologies: On one hand, we have technologically advanced areas such as AI-guided navigation, ultrahigh-performance composite materials, laser systems, and miniaturized power units; on the other hand, we have a mythical device that exists only in the realm of the imagination. This study serves to justify how these technologies could be interwoven into a single, logically functioning system.

Ethical and Philosophical Importance: One of the effects of the mythologically inspired engineering designs is that they are the prime catalysts of questions regarding human values, responsibility, and symbolism. Addressing them provides a compass for ethical-guided rather than purely technologically-driven innovation.

VIII. Novelty of the Study

The first scientific systematic paradigm for a mythological device: Many works symbolically describing the Sudarshan Chakra exist, yet hardly any make an attempt at a structured engineering interpretation that is comprehensive enough to include the principles of aerospace, AI control, materials science, and energy systems.

Transdisciplinary Challenge Rarely Attempted: This work singularly integrates the following discipline areas: cultural studies, philosophy of technology, future weapon design, and advanced engineering, thereby producing a hybrid conceptual model that cannot be found in existing literature.

New conceptual architecture of a high-agility spinning aerial device: The article envisages a disk-shaped flight/rotation hybrid mechanism, intelligent autonomous control inspired by mythic attributes, a unified energy-propulsion model, and a structural materials configuration capable of resisting extreme rotational forces. Such a model does not exist in current aerospace research.

Novel framing of ethics through symbolism: Instead of taking part in the conventional debates about weapon ethics, the paper resorted to the Chakra's usage as a symbol: balance, order, and righteous action, and used it as a philosophical structure to assess technological responsibility in the future.

Positions mythology as a design-inspiration methodology: This research is a demonstration of a unique approach where one takes mythological objects as the source of inspiration for engineering innovation and thus potentially opening new avenues in design thinking.

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