

Mechanising Tradition: Ethical, Cultural and Technological Dimensions of Mechanical Elephants in Kerala Temples

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Abstract

This paper examines the tradition of using captive elephants in religious ceremonies and festivals in Kerala's temples. For centuries, animals specially elephants are the integral part of the state culture and its temple rituals. However, rising concern over the elephant's pathetic condition because of mistreatment including stress, physical abuse, chaining for long-duration have incite the introduction of mechanical elephants with contemporary standards of expectation of animal welfare, safety, environment and economic sustainability. This paper investigates, can mechanical elephants effectively perform the functions of live elephants such as performing various rituals, aesthetic functions, ceremonial processions. Further, does the introduction of mechanical elephants effectively reduce the animal welfare concerns, safety risks for both elephants and humans, ecological damage. Lastly, the paper discusses future prospects and policy implications.

Keywords: Mechanical Elephant, Technology, Animal Welfare, Sustainability, Temples

1. Introduction

For centuries, India is home to animals ranging from the Royal Bengal Tigers to the Great Asiatic elephants. Elephants are considered as intelligent, social and emotional wild animals.³ The sacred status of elephants in South Asian culture traces back thousands of years to ancient Hindu and Buddhist cosmologies.⁴ These animals have been deeply rooted with the cultural

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³ Elephants Belong in Forest, Not in Chains, *available at*: <https://www.petaindia.com/features/ndtv-changemakers-season-5-how-peta-india-is-using-technology-to-help-elephants-live-free/> (last visited on December 9, 2025).

⁴ Why Elephants Are Sacred in Southeast Asian Legends, *available at*: <https://www.animalsaroundtheglobe.com/why-elephants-are-sacred-in-southeast-asian-legends-3-342197/> (last visited on December 5, 2025).

and religious fabric of India. Elephants are considered as decorative regalia and admired as living symbols of wisdom, strength and prosperity, in religious traditions elephants serve as vahans (vehicles) for various deities. During festivals, elaborately decorated elephants are always seen as one of the essential parts of ceremonial processions and temple rituals.⁵ South Indian temples have a long history of keeping elephants for many religious rituals and ceremonies. However, there are no sufficient evidences to trace the significant cultural or religious reasons. According to traditions, one of the reasons was to bring water from the river for performing daily temple rituals.⁶

Over the last few decades, the growing environmental issues and acts of cruelty towards non-human animals sit at odds with the core tenets of Indian culture. These growing concerns about animal welfare and sustainability have incited a transformative shift in Kerala temple practices. People for the Ethical Treatment of Animals (PETA) India came out with a win-win solution to rescue elephants from unimaginable suffering that allows temple traditions and ceremonial procession to continue but without causing any harm. This is how the concept of replacing captive elephants with mechanical ones was born.⁷ Temples across Kerala are now exploring a humane alternative by introducing mechanical elephants to perform their traditional roles in festivals and temple rituals.

Technological innovation of initiating robotic or mechanical elephants is a carefully calibrated decision to meet the ethical demands of contemporary society. These well engineered elephants, which closely mimic the movements and appearances of their actual counterparts, are designed in a manner that they can replace live elephants in order to deaden the suffering caused by the physical and psychological strains of temple duties.

PETA India's concept to replace live elephants with mechanical ones became a campaign which has gained traction. PETA has donated more than eight elephants to Kerala and recently in September renowned cricketer KL Rahul with PETA has also donated mechanical elephant to a temple in Thrissur.⁸

⁵ *Ibid.*

⁶ Compassion Unlimited Plus Action (CUPA) and Asian Nature Conservation Foundation (ANCF), Bangalore, India/ Varma, S., and Belagere, R., "An investigation into the Welfare and Management Status of Elephant Mariappan of Samayapuram Mariamman Temple, Thiruchirapalli, Tamil Nadu, southern India." (November 2010)

⁷ *Supra* note 3.

⁸ *Available at:* <https://www.petaindia.com/media/national-cricketer-kl-rahul-and-peta-india-gift-life-size-mechanical-elephant-to-padmanabhapuram-mahavishnu-kheeram-near-guruvayur/> (last visited November 30, 2025).

2. Objective of the Study

The primary objective of this paper is to examine the traditional rituals and religious significance of captive elephants in Kerala's temple. Here, the researcher tries evaluate the efficacy of mechanical elephants in ceremonial functions. The study aims to analyse this technological innovation and its functionality as an elephant, while also assessing their impact on animal welfare, human safety, ecology and economics. Additionally, the research aims to determine whether this experiment offer a sustainable and cruelty-free alternative to all state's temples while maintaining respect towards preserving cultural heritage.

3. Methodology

This research paper explores the significance of shifting from live elephants to mechanical elephants. The Researcher has adopted doctrinal research methodology and primary and secondary sources in carrying out the comparative analyse from the present study. Various animal welfare reports, cultural studies, media reports were used. Technological descriptions of mechanical elephants are referenced to contextualise contemporary developments. A diagnostic and predictive approach has been adopted to achieve this end.

4. Functional Roles of Mechanical Elephants in Temple Rituals

For performing religious ceremonies in various temples of Kerala, mechanical elephants have been introduced as a substitute for their live counterparts. Generally 3 meters tall and weighing 800 kilograms, these elephants perform various realistic functions. Their primary functional roles are:

4.1 Mimicking Lifelike Movements: The advanced propulsion systems allows these mechanical elephants to perform vital movements such as walking, pausing, blinking eyes and turning, often motorized by electric, hydraulic or battery-operated technology thereby allowing the structural design of these robot elephants to replicate the close imitation of real elephant behaviour.⁹ Complex ceremonial gestures get possible by integration of artificial intelligence and is performed

⁹ Robot Elephants in Kerala Temples, *available at*: <https://techgaze.glance.com/tech-guides/robot-elephants-in-kerala-temples-a-technological-leap-towards-ethical-worship> (last visited on December 5, 2025).

through motion control system in these models, ensuring that the temple's heritage remain respected and preserved in modern times.¹⁰

4.2 Replacement of Ritual Procession: In past, elephants were used to lead temple parades, carry temple deities and served as a symbol of glory.¹¹ Robot elephants are actively participating in temple processions and ceremonies today by replicating the precise movements, ear and eye movements, displaying trunk gestures and mimicking head shaking.¹² The maintenance of visual and symbolic parade of traditional rituals without living animals suffering gets possible through such precision.

4.3 Operational Efficiency in Temple Settings: Amongst various advantages, there are several operational advantages of using mechanical elephants *inter alia* temple authorities having fine control of every aspect of elephant performance through remote-control¹³ and the risk of unfortunate incidents associated with the volatile behaviour of the animal thereby getting significantly minimized.

5. Technical and Operational Aspects

The advanced technical design of mechanical elephants hinges by successful implementation of operational capabilities in Kerala temples. Let us understand the underlying technology and operational aspects used to perform traditional roles.

5.1 Structural Material and Construction: The variety of new age material used in construction of these mechanical elephants like carbon fibre, silicone, metal alloys, rubber, fibre, mesh, foam and steel. In some models, to ensure strength and longevity, the core structure of the robot forms by an iron frame. These materials make sure not only for the durability but also to give feel of soft and rugged appearance of live elephants.¹⁴

¹⁰ Robot Elephant Replace Real Animals for Cruelty-Free Indian Temple Rituals, *available at:* <https://theethicalist.com/robot-elephant-replaces-animal-indian-temple/> (last visited on November 29, 2025).

¹¹ *Ibid.*

¹² *Supra* note 9.

¹³ Robot Elephants in Kerala Temples, *available at:* <https://techgaze.glance.com/tech-guides/robot-elephants-in-kerala-temples-a-technological-leap-towards-ethical-worship> (last visited on December 5, 2025).

¹⁴ Kerala Temple Welcomes Mechanical Elephants 'Kombara Kannan' from PETA India & Sitarist Anoushka Shankar, *available at:* <https://thellogicalindian.com/kerala-temple-welcomes-mechanical-elephant-kombara-kannan-from-peta-india-sitarist-anoushka-shankar/> (last visited on December 7, 2025).

5.2 Actuation and Motion Systems: The combination of hydraulic and electric actuators empowered the robotic elephants for movement such as walking, head shaking and ear flapping, all these life-like behaviour are AI driven.¹⁵

6. Animal Welfare and Ethical Consideration

Animals have been an integral part of the culture and religion in India. But ironically, live elephants in temples are subject to abuse. The conditions in which they stay are really bad because of prolonged chaining, heavy decoration on them, exposure to loud noises last but not the least physical abuse which raise the demand for a solution by animal rights activists time to time. So, this was the major reason behind the idea of using mechanical elephants to address animal welfare issues.

They face multiple welfare challenges in temple processions such as physical restraints, long-time confinement etc. Number of studies and reports show that a noteworthy number of temple elephants in Kerala suffer with chronic stress, physical injuries and in some cases premature death. It has been reported by The Centre for Research on Animal Rights that 138 captive elephants have died between 2018 and 2023.¹⁶ This harsh reality has incited various animal welfare organizations to seek some solid alternatives that help to reduce the pain suffered by these majestic creatures.

6.1 Humane Alternative:

Several temples in Kerala have embraced this concept of mechanical elephants as a humane alternative. This ensures that the resplendence of the ceremonies is maintained without any inhumane act. This much needed shift not only provides a practical solution to elephant's mistreatment but also save the dignity of temple practices with contemporary way out.¹⁷

¹⁵ *Ibid.*

¹⁶ Kerala: India temple replaces elephant with robot for rituals, *available at:* <https://www.bbc.com/news/world-asia-india-64740853> (last visited on December 3, 2025).

¹⁷ *Ibid.*

6.2 Conservation and Wildlife Protection:

Mechanical elephants replacing live elephants provides a sustainable solution as unlike real elephants, they do not require food, water, or extensive care, which automatically reduces the environmental footprint. This move of the temple authorities and animal rights groups align with India’s commitment to wildlife conservation and sustainability. This much needed change support broader wildlife conservation efforts to secure the preservation of natural habitats.¹⁸

Table 1. Welfare Consideration for Live and Mechanical Elephants:^{19 20}

	Welfare Factor	Live Elephants	Mechanical Elephants
1.	Exposure to Harsh Conditions	Subjected to chaining, loud noises, and misuse	Operate in controlled, predictable environments
2.	Need for Veterinary Care	Subject to constant requirement of food supply, care and medical treatment	No biological needs, less maintenance required.
3.	Longevity and Health	Vulnerable to physical injuries and immense stress of performance	Perform without any fear, AI control system
4.	Ethical Considerations	Exploitation and cruelty may be involved in traditional use	Cruelty-free alternative with modern values

7. Sustainability and Economic Impact

Environmental Sustainability is one of the several practical advantages of mechanical elephants. As already discussed, they do not need feeding or veterinary health checkups unlike their living counterparts thereby reducing the resource burden. It further helps in reducing environmental footprints of the temples as these mechanical elephants are made up of eco-

¹⁸ Elephants in religious festivals: Could mechanical jumbos be the ethical way ahead?, *available at:* <https://www.downtoearth.org.in/wildlife-biodiversity/elephants-in-religious-festivals-could-mechanical-jumbos-be-the-ethical-way-ahead> (last visited on December 6, 2025).

¹⁹ *Supra* note 14.

²⁰ Robotic Elephants in Kerala Temples: A Humane Tech Revolution, *available at:* <https://blog.aquartia.in/index.php/2025/04/05/robotic-elephants-in-kerala-temples-a-humane-tech-revolution/> (last visited on 6, 2025).

friendly materials and powered by rechargeable batteries, which are low maintenance. It makes them an all-time attractive long-term alternative.²¹

Economic Considerations while investing in mechanical elephant cannot be ignored. Initially, the upfront cost incurred might sound high but their long-run economic benefits are substantial. Below is a table outlining the key economic and operational differences between live and mechanical elephants:

Table.2 Economic and operational comparison between live and mechanical elephants in temple settings:^{22 23}

	Parameters	Live Elephants	Mechanical Elephants
1.	Initial Investment	Lower initial cost but higher ongoing expenses (feeding, health, care)	Higher upfront cost with lower long-term expenses
2.	Maintenance Costs	High (veterinary care, housing, training)	Low (battery charging, periodic maintenance)
3.	Safety and Liability	Higher risk with potential human injury Risks	Low risk with consistent performance and controlled behaviour
4.	Environmental Impact	Requires significant resource input	Eco-friendly design; minimal resource consumption

8. Comparative Analysis: Live Elephants Versus Mechanical Elephants

In order to appreciate the transformative impact of mechanical elephants, it is essential to compare them with the traditional use of live elephants in temple rituals. A detailed comparative analysis based on several critical factors is as follows:

²¹ *Ibid.*

²² *Supra* note 18.

²³ *Supra* note 10.

8.1 Captive Elephants: They are subject to cruelty, such as chaining for long- duration and prolonged exposure to stressful conditions during festivals forcing them to display antisocial and even aggressive behaviour. They often try to break free and if they're successful, they can harm humans, animals and property. The Heritage Animal Task Force of Thrissur district has compiled data of captive elephants killing 526 people in Kerala in 15 years' time period from 1997 to 2012. Mostly, these unfortunate incidents take place in the state's festival circuit.²⁴ Their overall health and well-being also get adversely affected, leading to significant welfare issues and documented instances of premature death. There is always need of constant supervision for safe operation and required skilled mahouts.

8.2 Mechanical Elephants: They are 'safe and cruelty free'²⁵. Using mechanical elephants not only represents a cruelty free alternative but a practical solution that respects religious customs and animal welfare at the same time.²⁶ They work in controlled environment with zero risk to human life and property.

9. Future Prospects and Policy Implications

It seems in coming future use of mechanical elephants will become a trend and will bring potential shifts in how people see intersect of tradition and modern technology. Future development in technology and AI integration is expected to enhance the functionality of mechanical elephants much closer to reality.²⁷ When in future, more temples want to adopt this alternative, the need for comprehensive policy reforms may grow. To meet this, animal welfare organizations and Government agencies must come forward and collaborate on making guideline related to encourage ethical practices. Policies might include incentives for temples which are introducing mechanical elephants in their rituals to promote cruelty free route and impose stricter regulations on using animal during festivals and how they have been treated by temple authorities.²⁸

²⁴ Shaju Philip, "In a first, Kerala temple deploys life-size 'robotic elephant' for festival", *The Indian Express*, Feb. 27, 2025.

²⁵ *Supra* note 14.

²⁶ Kerala Temple Welcomes Mechanical Elephants 'Kombara Kannan' from PETA India & Sitarist Anoushka Shankar, available at: <https://thellogicalindian.com/kerala-temple-welcomes-mechanical-elephant-kombara-kannan-from-peta-india-sitarist-anoushka-shankar/> (last visited on December 7, 2025).

²⁷ *Ibid.*

²⁸ *Supra* note 16.

This Successful Kerala temple's initiative has drawn attention internationally. Elephants also play prominent roles in the culture of countries *viz.* Sri Lanka, Myanmar and Thailand.²⁹ These countries may take inspiration from the experiment to see this as a template for ethical cultural reform globally. Different International organizations have praised this move as a “Beacon of hope” that intersect tradition with modern technology.³⁰

10. Conclusion

The emergence of mechanical elephants in temple ecosystem becomes a turning point for technological innovation and cultural tradition. Although historically elephants have embodied spiritual grandeur and ritual significance, their use had raised serious concerns regarding stress, confinement cruelty, injury and premature mortality. Mechanical elephants offer a humane and sustainable solution by retaining the ceremonial aesthetics and symbolic value of traditional rituals without subjecting animals to suffering. Their programmable and controlled movements not only enhance safety for devotees and temple staff but also eliminate the unpredictability associated with live animals. Environmentally, they reduce the ecological burden and align with India's wildlife conservation commitments. They have worked as a bridge to create harmony between ancient traditions with contemporary standards. Animal welfare is the most significant impact of this epitome shift; it helps in eliminates the physical pain and cruelty brook by the animals. This represents more of profound cultural evolution than technical advancement. Kerala's initiative stands proof that traditions can evolve without compromising the dignity of sentient beings.

²⁹ Why Elephants Are Sacred in Southeast Asian Legends, *available at:* <https://www.animalsaroundtheglobe.com/why-elephants-are-sacred-in-southeast-asian-legends-3-342197/> (last visited on 8, 2025).

³⁰ Shilpa Nair Anand, “Kerala-made mechanical elephants are making their way into temples in South India”, *The Hindu*, Mar. 1, 2025.