

Research Paper of Lakhan Tank

Deepak Singh

Department: Information Technology

University: Rajiv Gandhi Proudhyogiki Vishwavidyalaya, Bhopal, Mp

Abstract- Lakhan Tank is an advanced tank shielded with drones that can be controlled by remote technology from Base Operating Station. Example: Drones. This Lakhan tank named given Lakhan as the tribute to the younger brother Lakhan of Lord Rama. To provide strategic advantage minimum 4 drones can fit into this Tank to provide the shield and cover fire while reloading tank shell or ammunition. For Technology safety from leaking Explosive is also fitted to destroy the tank and to do damage to enemy units.

Keywords: Lakhan Tank, Artificial Intelligence, AI, Armored Tank, Drones, Ammunition, Radar, Self Destruction Explosive, Night Vision, Infrared Scanning Vision, Antenna.

I. I INTRODUCTION

The **Lakhan Tank** is a conceptual advanced armoured vehicle designed to integrate drone-assisted protection and remotely controlled aerial surveillance technology. The proposed system incorporates a Base Operating Station (BOS) to facilitate remote drone operation, monitoring, and coordination with the tank. The name *Lakhan Tank* is inspired by Lakshmana (also known as Lakhan), the younger brother of Lord Rama, as a tribute to his loyalty, courage, and dedication.

The proposed design envisions the integration of a minimum of four drones to enhance situational awareness and provide aerial coverage around the tank. These drones are intended to support battlefield observation, threat detection, and coordinated defensive operations, particularly when the tank is temporarily unable to engage targets during ammunition reloading. This concept aims to improve operational awareness and reduce the vehicle's vulnerability during critical phases of combat.

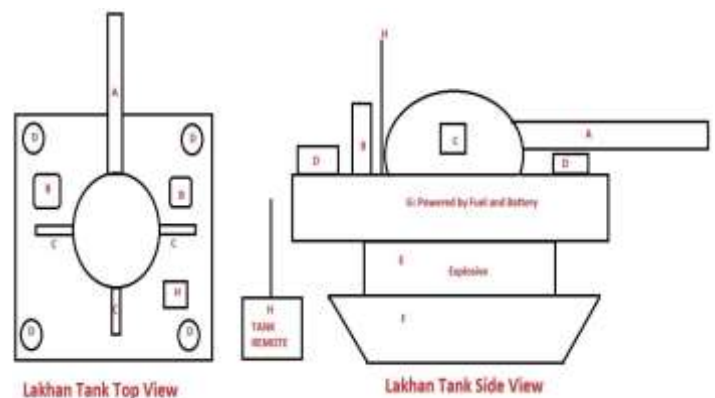
Additionally, the proposed system considers safety measures for managing explosive hazards and ammunition-related risks within the armoured vehicle. Such safety provisions would require careful engineering assessment to ensure crew protection, prevent accidental detonation, and minimize unintended damage to friendly units and surrounding infrastructure.

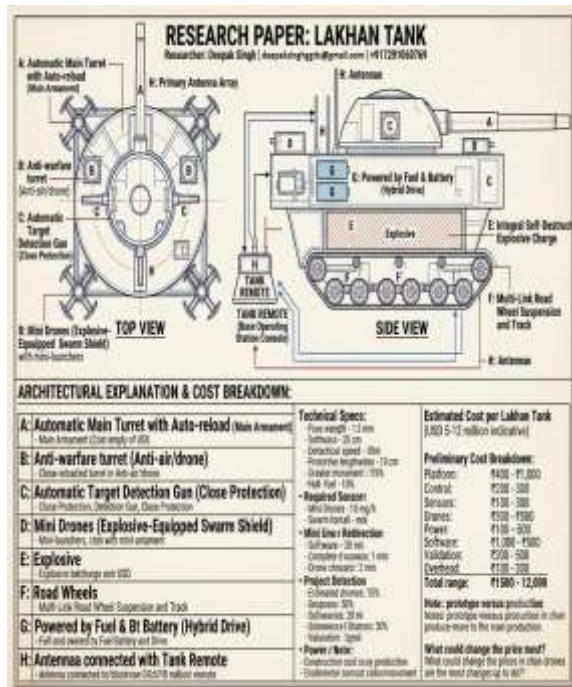
Overall, the Lakhan Tank concept explores the potential integration of armoured vehicle technology, remotely operated drones, and centralized control systems to improve battlefield awareness, survivability, and operational effectiveness. Further research, engineering analysis, and prototype testing would be necessary to evaluate its

technical feasibility, safety, and practical military applications.

II. SPECIFICATIONS OF LAKHAN TANK

- Remote controlled tank can move on land and water.
- At least 4 Drones are in built in Tank
- Ammunition
- Radar
- Automatic ammunition load system
- Scan enemy area
- Remote Controlled by Base Operating Station
- Tank and Drone explosion to save leaking tank technologies.
- Armor Tank





2.1 Architecture Of Lakhan Tank

- A: Automatic Turret with Auto reload
- B: Anti-warfare turret with Auto reload
- C: Automatic Target Detection Gun with Auto Reload
- D: Mini Drones with auto reload
- E: Explosive
- F: Road Wheels
- G: Powered by Fuel and Battery
- H: Antenna connected with Tank Remote
- Working of Lakhan Tank Architecture Explanation:

A: Automatic Turret with Auto reload : Automatic Turret is for fire shell. An automatic reloading turret uses a motorized or hydraulic system to load ammunition without human intervention. Sensor detect when a round is fired, then feed mechanism (carousel, belt or magazine) bring the next round from storage. A rammer pushes the round into the chamber, the breech locks automatically, and the turret is ready to fire again. All steps are controlled by an electronic fire-control system for speed and accuracy. **Example: T-90 Bhisma**

B: Anti-warfare turret with Auto reload: An anti-air tank turret uses an automatic feed and reload system to engage fast aerial targets. Radar/optical sensors detect and track aircraft or drones and the fire-control system calculates aiming, Ammunition (cannon round and missiles) is supplied from an internal magazine or belt feeder, which automatically loads the weapon after each bust or launch. Spent cases are ejected,

the next round is chambered instantly, and the turret continuously adjust aim, allowing rapid sustained fire. **Example: ZSU-23-4 “Shilka”**

C: Automatic Target Detection Gun with Auto Reload: To fire bullets on enemy crew. Sensor(thermal camera, day sight, radar/laser) detect and identify targets automatically. The fire-control computer tracks the target, calculates lead, range and stabilization, and aligns the gun. When firing occurs, the autoloader ejects the spent case, selects the next round from the magazine, rams it into the chamber, and locks the breech. The system keeps tracking the target and is ready to fire again within seconds, enabling fast, accurate engagements. **Example: Arjun Mk-1A and Zorawar Light Tank.**

D: Mini Drones with auto reload equipped with Explosive : At least 4 drones shield covering from 4 directions(East, West, North, South) in built in Lakhan Tank. Equipped with Explosive is last option to critical damage directly hits the target or tanks if battery is in critical stage and cant return to tank and base operating station.

Working:

- Launch & Detect: Mini drones are launched from a ground/vehicle-mounted auto-reload launcher. Onboard sensor(EO/IR camera, radar feed from ground) detect targets.
- Engage/Mission: Drone performs ISR loitering attacks or decoy role.
- Return/Replace: After mission or battery drop, drone returns or is expended.
- Auto-Reload: Launcher automatically feeds the next drone from a magazine/rotary rack, arms it, charges battery, and launches again within seconds-no manual handling.
- Continuous Ops: Enable swarm or sustained sorties.

Example: DRDO-ALFA-S(Air Launched Flexible Asset-Swarm), Idea Forge/New Space Research.

E: Explosive: Explosive attached internally in the tank for security and saving the technology from leaking while tank can captured. Remotely Pilot can trigger the bomb from Base Operating Station which is attached in tank. If in case scenario tank is captured then destroy the tank and can do damage to the enemy soldiers and battalion.

F: Road Wheels: For movement of Tank. Road wheels support the tank’s weight and guide the tracks, allowing smooth movement over rough terrain. They work with the suspension system (torsion bar or hydropneumatic) to absorb shocks, maintain traction, and keep the tank stable while moving and firing.

G: Powered by Fuel and Battery: Fuel powers the main engine, which drives the tank's movement and major systems. The battery supplies electrical power for starting the engine and running electronics, sensors, communication, and weapons systems-especially when the engine is off or at low RPM.

H: Antenna connected with Tank Remote: Synchronized with its remote:

- The remote controller antenna sends radio signals (commands) at a fixed frequency band (e.g., 2.4 GHz or 5.8 GHz).
- The Lakhan Tank antenna receives these signals and passes them to the tank's receiver.
- Both antennas are synchronized (paired) using unique ID and hopping pattern (frequency hopping).
- The Lakhan Tank antenna also transmit back telemetry (GPS, battery, video data) to the remote.
- Automatic frequency hopping avoid interference and keeps the link stable.
- If the signal weakens or break the tanks triggers the bombs of drones attached with it. And also triggers the bomb inbuilt in Lakhan tank. To save the technology leaking.

Basic strategy to use Lakhan Tank:

1. Power – ON
2. Drones shield activated.
3. Tank fire shell automatic and reload automatic.
4. While Shell reloading at the moment drones gives backup fire.
5. Tank shell reload done then Tank fire shell.
6. Automatic target detection enemy unit killing via tank guns.
7. If mission successfully then Lakhan Tank return to base operating station
8. If in case, :Ammunition and battery, fuel in critical stage finished.
9. Drones explosive activate hit targets
10. Tank in built explosive activated. Damage done to enemy unit and battalions. Save Tech from leaking.

2.3 Pros Of Lakhan Tank

- Solider will control this tank from Base operating station since, no solider causality and deaths.
- Advance AI control fire and reloading system.
- No tank capture.
- No Technology leaks.

Cons/ Limitation of Lakhan Tank

- Working Range of Lakhan Tank.
- If Ammunition finished in battle then re-supplies problem.

Approx. Estimated cost per Lakhan Tank
Indicative manufacturing estimate for one unit: US\$5–12 million

Assumption: a new, remotely operated armored tracked vehicle with four drones, sensors and custom systems integration. This is a preliminary planning estimate, not a supplier quotation.

Illustrative midpoint: \$8.5 million

Separate prototype R&D budget: \$5–15 million

The estimate is informed by public benchmarks: a 2024 Bruegel policy paper estimated costs of approximately €4.16 million for a T-90 and €17.56 million for an M1A2 Abrams. Those are established crewed tanks, not direct equivalents of Lakhan Tank.

1. Preliminary cost breakdown

The following is an illustrative budget for a research-stage vehicle, using broad subsystem categories rather than a detailed military equipment bill of materials.

Cost category	Estimated cost (USD)
Armoured tracked vehicle platform, chassis and mobility	\$1,500,000–3,000,000
Remote control, communications and control station integration	\$300,000–800,000
Radar, cameras and situational-awareness sensors	\$300,000–800,000
Four mini-drones and supporting non-weapon systems	\$100,000–400,000
Power systems, electrical systems and thermal management	\$200,000–500,000
Software integration, cybersecurity and autonomy testing	\$500,000–1,200,000
Mechanical, electrical and environmental validation	\$500,000–1,300,000
Manufacturing overhead, quality assurance and contingency	\$1,000,000–4,000,000

These are preliminary assumptions, not independently verified component prices. The categories are illustrative and require validation by qualified vehicle manufacturers and engineering contractors.

The figures above should not be treated as a fully reconciled quotation. Their combined range is approximately \$4.4–12 million, consistent with the rounded planning range of \$5–12 million.

This estimate excludes detailed pricing for weapons, ammunition, explosives and self-destruct mechanisms.

1. One prototype versus production

Project stage	Indicative budget
Initial research and engineering prototype	\$10–27 million
Additional units after the design is validated	\$5–12 million per unit
Small production run of 10 units	\$50–120 million

Small production run of 100 units	\$400 million–\$1 billion
-----------------------------------	---------------------------

These are scenario estimates, not quoted market prices. Prototype costs include one-time design and testing expenses; production costs assume some economies of scale. The 10-unit and 100-unit figures exclude a separate major R&D programme, support infrastructure and long-term operating costs.

1. What could change the price most?

2. Armored and vehicle weight: heavier protection can increase chassis, engine, suspension and transport costs.
3. Autonomy requirements: remotely controlled operation is different from reliable autonomous navigation and decision-making.
4. Drone integration: four commercial surveillance drones are far less expensive than custom ruggedized military drones.
5. Testing and reliability: a concept that works in a demonstration may require substantial further development before operational use.
6. Production quantity: one prototype usually costs much more per unit than a mature design manufactured at scale.

REFERENCES

1. www.chatgpt.com
2. www.gemini.google.com