



KAIZEL TECH

"Protecting our Protectors"

Kaizel Tech

We are a team of young Innovators and Entrepreneurs whose aim is to provide India with advanced Technology useable in different sectors alongside defense equipment with state of the art technology. We also aim to provide active practical solutions to the common problems faced by not just the people of India but throughout the world, in the most reliable and efficient way, our company aims to make earth a utopian place to live.

"Protecting Our Protectors" ▶



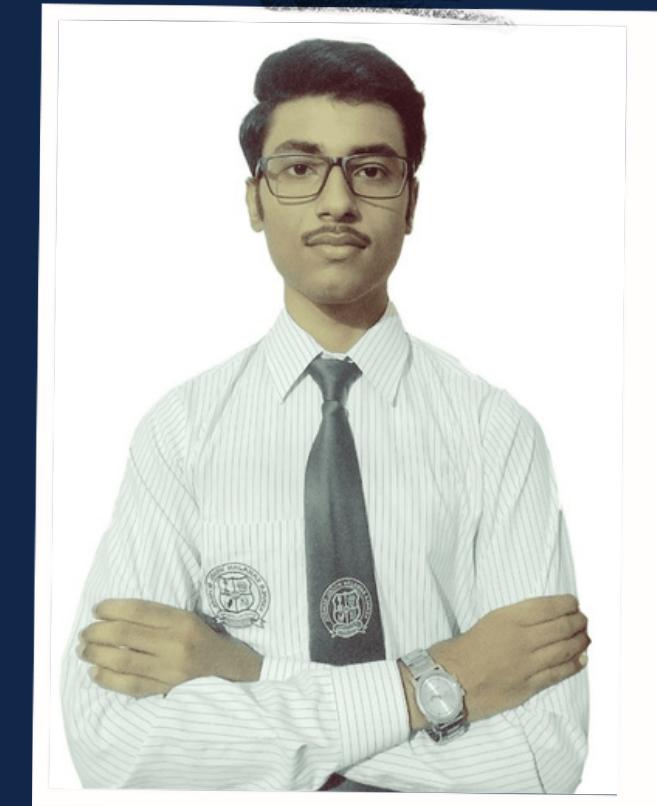
Meet Our Team



Tanishq Upmanyu
Founder & Chief
Executive Officer



Sameer Yasin
Co-founder & Chief
Operations Officer



Abhay Kumar Das
Lead Designer

Problem Statement

Our Defence forces have no choice but to send in the security personnel as bomb squads to disable explosive devices, leading to casualties more often than not. We are trying to develop a drone that addresses the same by using electromagnetic pulses to detect and temporarily disable any devices using an electronic current to function.

This is why we want to propose a new and innovative solution to this problem.



Problem Statement

In the future, we will also work in regard to the development of high-class EMP drones which can provide a huge amount of electromagnetic pulse which can disable radars efficaciously, and provide an advantage for the armed forces during confrontations.

Radars, as we know, are a huge problem, and bypassing them requires a big amount of resources and manpower, we are moving ahead to develop solutions to solve this problem for the armed forces.



***“What will happen if we can neutralize a
bomb before it explodes? How many lives
can we safeguard this way ?”***

- "Sewa Paramo Dharma" | "Nabha sprsham deeptam" | "Sham-no Varuna" -

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Innovation

For that, we, a group of students, have made a project called EMP Drone. We have made a prototype of a drone that uses Electromagnetic pulse waves (EMP) to temporarily disable electrical circuits and can disable the target/device itself. Electromagnetic pulse wave-based drones are currently not being used by the armed forces for military purposes by any other country and ours as well. But we have changed this technology to benefit our country, we also understand the need for making quality products but at cheaper costs, taking inspiration from ISRO's Mars mission we came to this conclusion,

Brief Description of Technology/Product

We have made a prototype of a drone that uses Electromagnetic pulse (EMP) to temporarily disable electrical circuits and then can be used to destruct the target. EMP-based drones have not yet been developed by any other country for military purposes which makes our product the very first in this sector. Our prototype cost us INR 40,000 which we built from scratch to the final product.

This was exhibited in various institutions such as IIT Gandhinagar, IDEX DIO platform of The government of India, BIET University, IGFRI University, Vigyan Bharti exhibition conducted by the Bundelkhand University where we ranked first among high schoolers and undergrads. Our prototype was able to disable different devices like alarm bells, oscilloscopes, multimeters, a smartphone, and an unweaponized bomb replica.

Our current prototype can generate a minimum of 50 kV and a maximum of 100 Kilovolts (kV) which we can maximize up to 200-300 Kilovolts (kV) via further development.



Working capabilities

This drone can generate up to 100 kV which equals 1,00,000 volts and can be used to destroy all kinds of active electrical circuits making it especially useful during armed conflicts or confrontations. Electromagnetic pulses have not been used for military purposes by any other country which marks our product as the first. The drones will self-destruct once in range of disabled electrical circuits which will keep our technology safe.

These can also be used to destroy any kind of electrical activity within the specified range which can be used to prevent networking errors. We have also installed GPS and telemetry for location accuracy and surveillance. Our drones use EMP which makes them safe from all kinds of drone defense systems thus ensuring easier movements. We aim to address the above-mentioned problems with our drone resources



Electromagnetic Pulse (EMP)

An electromagnetic pulse (EMP), also a transient electromagnetic disturbance (TED), is a brief burst of electromagnetic energy.

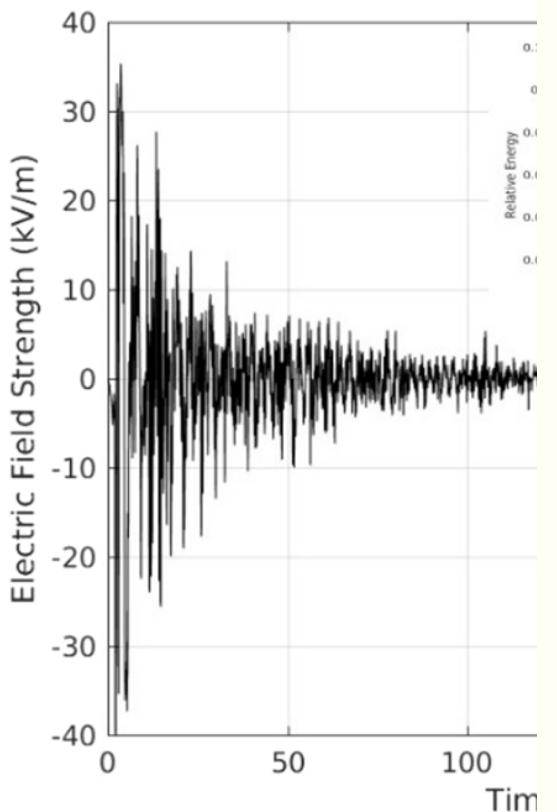
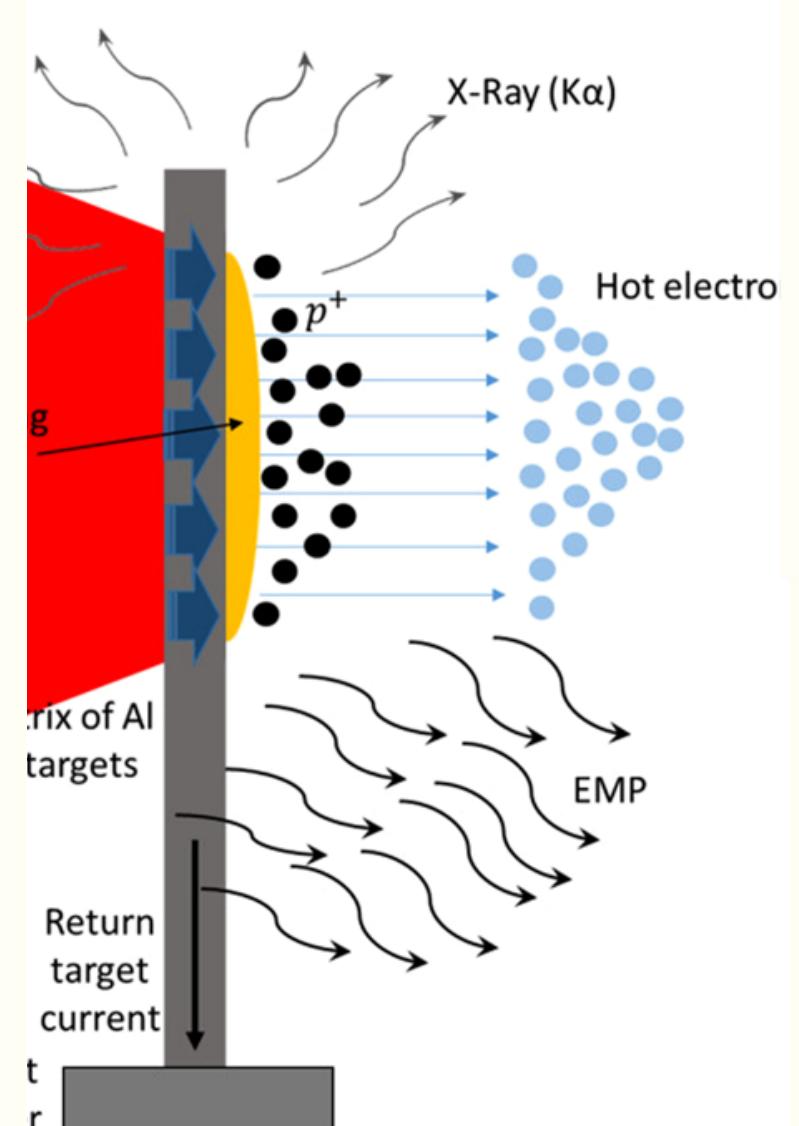
Depending upon the source, the origin of an EMP can be natural or artificial and can occur as an electromagnetic field, an electric field, a magnetic field, or a conducted electric current. The electromagnetic interference caused by an EMP disrupts the frequency at which current flows through the circuit. A powerful electromagnetic pulse event such as a lightning strike can damage physical objects such as buildings and aerodynamic structures.

We are using this very principle for our drone which will work the same way to disable electrical circuits.



Electromagnetic Pulse (EMP)

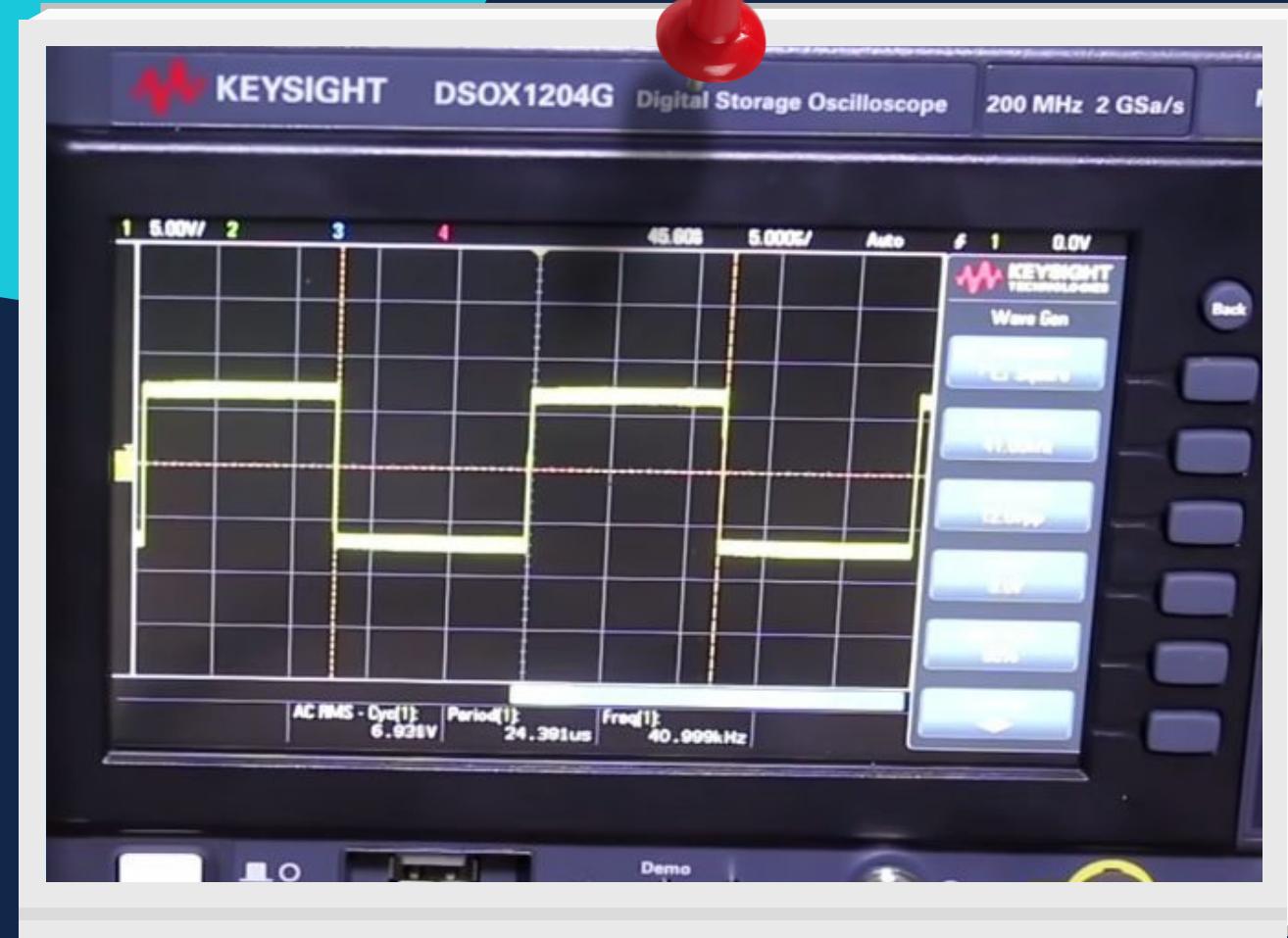
The management of EMP effects is a branch of electromagnetic compatibility (EMC) engineering. EMP weapons are designed to deliver the damaging effects of a high-energy EMP that will disrupt unprotected infrastructure in the country, thus the employment of an EMP weapon against a country is the scenario of war most likely to collapse the functionality of the electrical network throughout the country. When high voltages like 1,00,000 volts pass through heavy gauge wire, it induces electromagnetic radiation and any other electrical circuit within the field gets disrupted. Electromagnetic pulses affect the frequency at which the circuit is functioning which results either in it getting diffused or not working the way it was supposed to. We are also using non-nuclear electromagnetic pulses for better efficiency.





Drones/ UAV

An unmanned aerial vehicle (UAV), commonly known as a drone, is an aircraft without any human pilot, crew, or passengers on board. UAVs are a component of an unmanned aircraft system (UAS), which includes adding a ground-based controller and a system of communications with the UAV. The flight of UAVs may operate under remote control by a human operator, like remotely piloted aircraft (RPA), or with various degrees of autonomy, such as autopilot assistance, up to fully autonomous aircraft that have no provision for human intervention. UAVs were originally developed through the twentieth century for military missions too "dull, dirty or dangerous" for humans, and by the twenty-first, they had become essential assets to most militaries. "As control technologies improved and costs fell, their use expanded to many non-military applications. These include- Aerial photography, Product deliveries, Agriculture, policing and Surveillance, Infrastructure inspections, Science, Smuggling, and Drone racing".



Without EMP



With EMP

Observation, Results & Conclusion

During testing of our initial prototype, our EMP generator turned out to be extremely effective and was capable of disrupting multiple devices including an alarm bell, one smartphone, and an oscilloscope. We also found that it was operating on different frequencies which led us to the conclusion that our project was working efficiently.

BHARAT MATA KI JAI !

Product Features

When it comes to flying an FPV drone, essentially this means that pilots of FPV drones see what the drone sees. Traditional drones differ from this as they are piloted through the pilot's perspective on the ground. We are using the following components: -

- 1. Flight Controller
- 2. rxtx remote
- 3. GPS
- 4. Gyroscope
- 5. Accelerometer
- 6. EMP
- 7. Night-vision
- 8. Recording / Transmission
- 9. Thermal Camera
- 10. Lasers
- 11. Self explosive for drone
- 12. Range up to 200 km
- 13. Automated system for landing and flying in bad weather



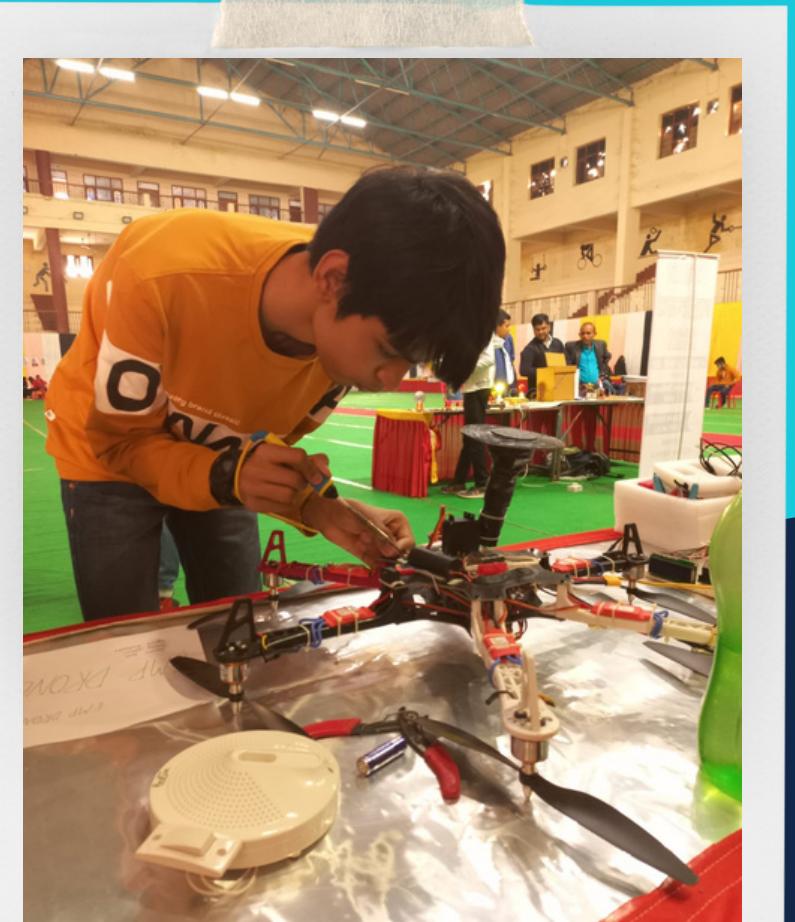
3D design of the Drone



Technology Advantages

We designed an EMP generator that has a capacity of generating up to 50KVs using copper coil, spark gap, and radiation shield using lead which protects the drone and its components from EMP radiation.

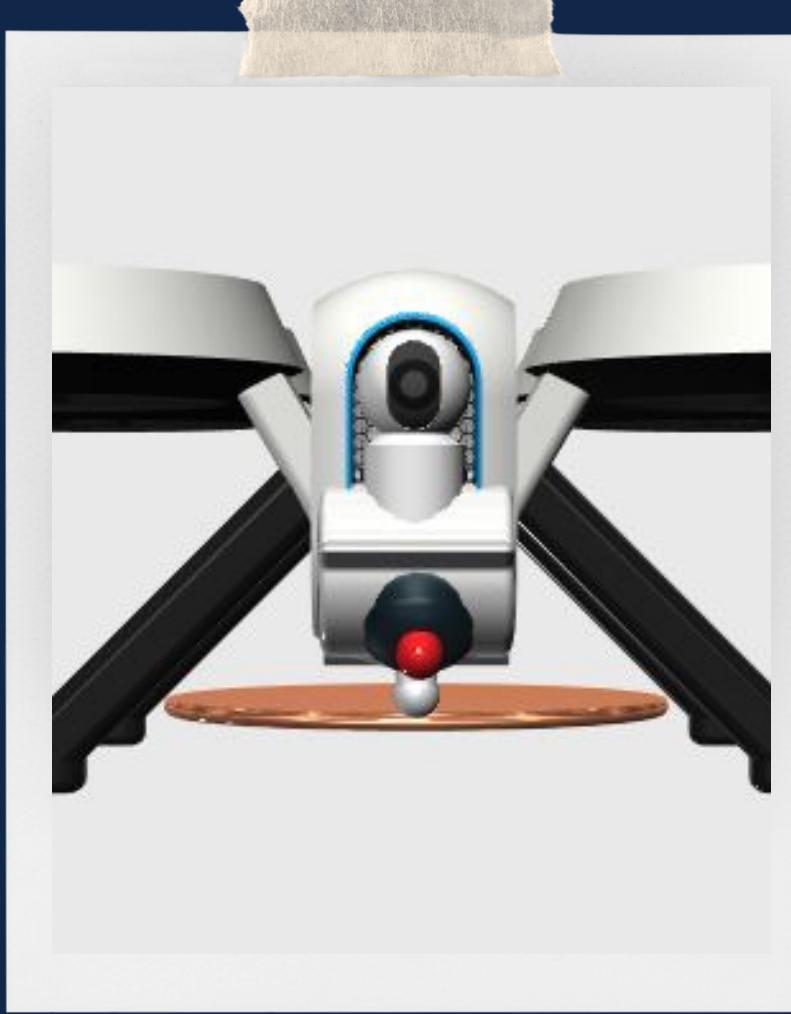
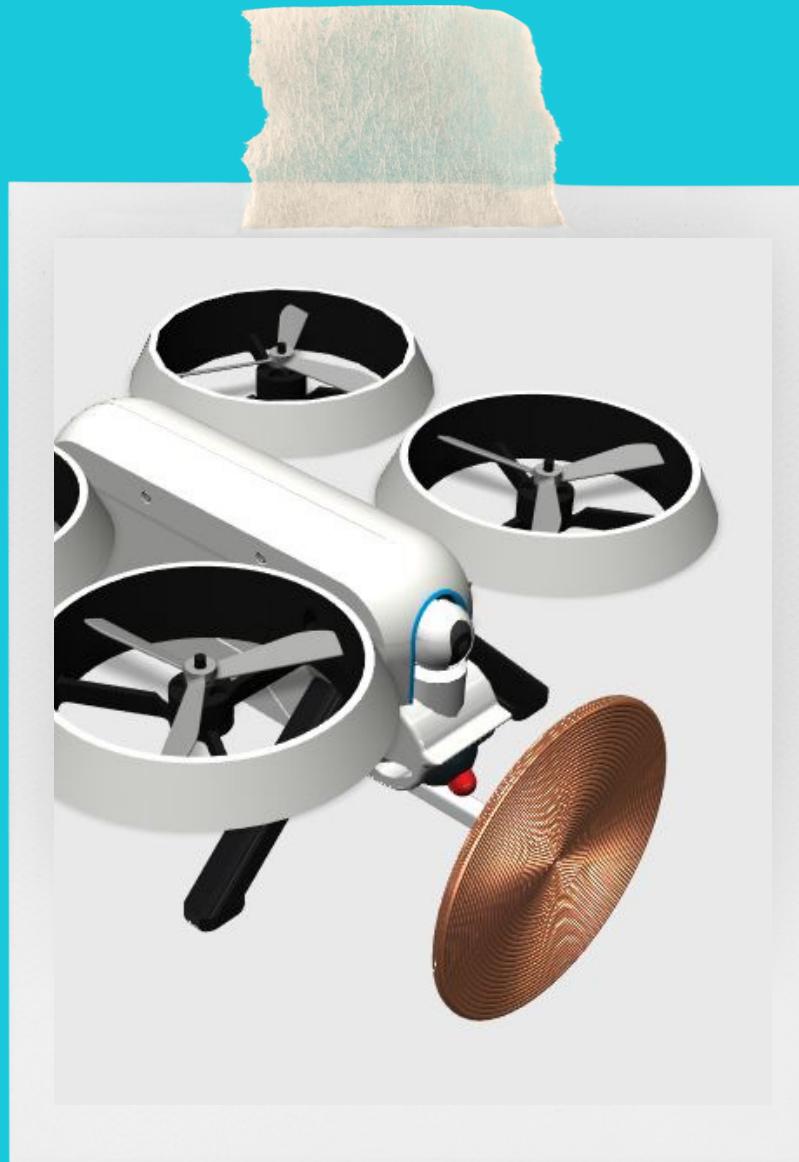
It is compatible with our EMP generator as they both are separately functioning. Our drone will be functional with and without the EMP generator and being detachable, they completely pass our security measures.



Product Advantages

Electromagnetic pulses have not been used for military purposes by any other country which marks our product as the first and gives us the first-mover advantage. The drones will self-destruct once in range of explosives which will keep our technology safe.

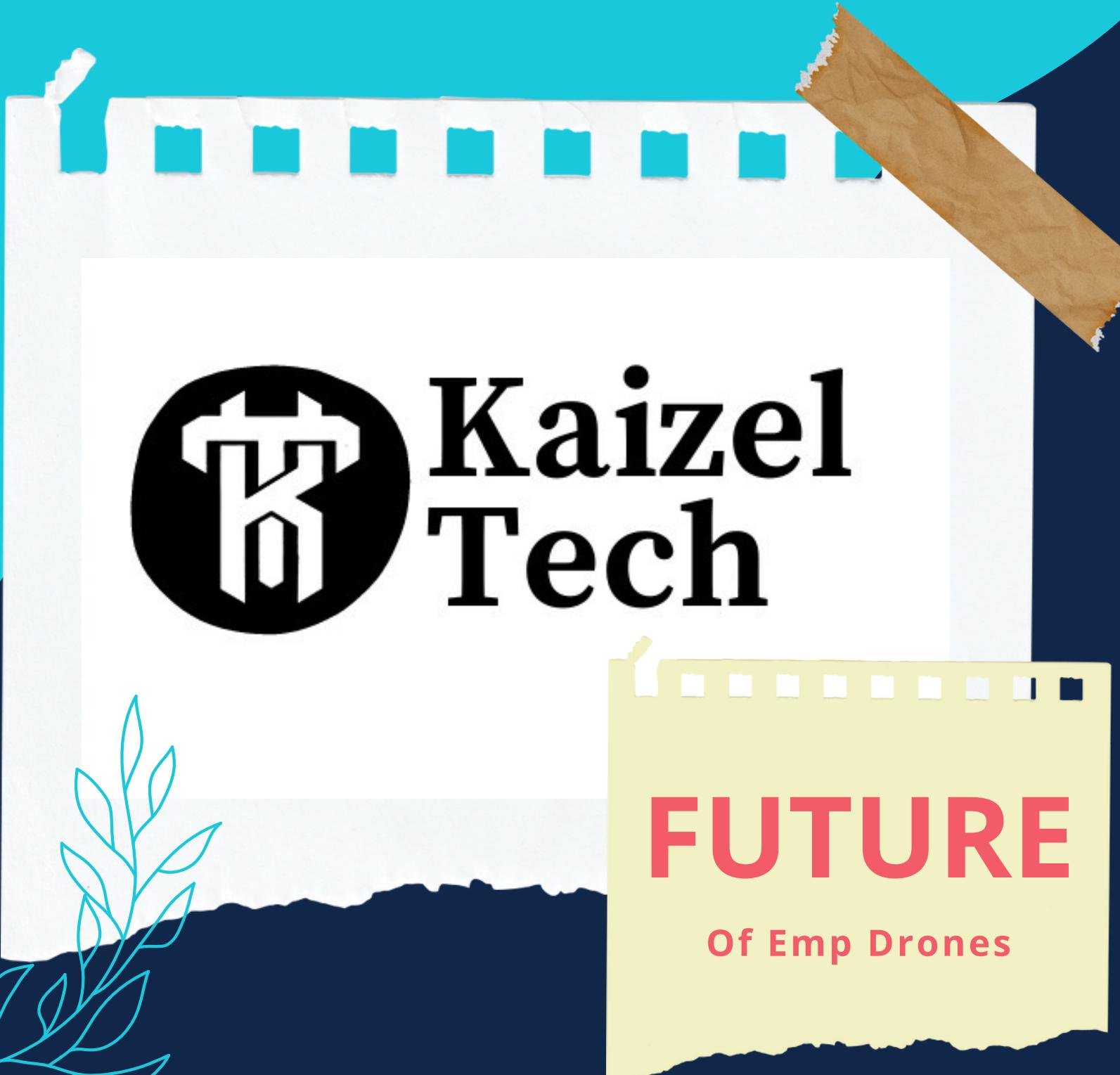
These can also be used to destroy any kind of electrical activity within the range which can be used to prevent networking errors. We have also installed GPS and telemetry for location accuracy and surveillance. Our drones use EMP which makes them safe from all kinds of drone defense systems thus ensuring easier movements.



The commercial advantage of the product

We know that as much as a product should be innovative it should also be scalable. Our startup is undergoing various product and innovation development projects with our flagship being the EMP drone which as per our knowledge is scalable and profitable not just in the defense sector but in other sectors as well.

We believe that our startup has a rather high potential in increasing the commercialization of the Indian drone industry working in both business-to-business and business-to-customers models of trade.



Capabilities and competencies of the individual/firm

In a world where business depends only on wealth. We at Kaizel Tech are Innovating and inventing while keeping in mind that it's very cost-effective. We have made a prototype of a drone that uses Electromagnetic pulse waves (EMP) to temporarily disable electrical circuits and can disable the target/device itself. Electromagnetic pulse wave-based drones are currently not being used by the armed forces for military purposes by any other country and ours as well.

But we have changed this technology to benefit our country, we also understand the need for making quality products but at cheaper costs, taking example from ISRO's Mars mission we came to this conclusion, In common pretense, we are just a team of teenage innovators who are currently working to support our country and armed forces.



Capabilities and competencies of the individual/firm



Our Team members include International/National level Award winners. As our startup goes: We exhibited the drone in the Vigyan Bharti Exhibition conducted by Bundelkhand University and ranked first among high schoolers and undergraduates.

We disabled multiple devices like alarm bells, oscilloscopes, multimeters, one smartphone, and an unweaponized bomb replica without explosives... We showed the working model to Prof. MM Singh and Prof. RK Saini. Our current prototype can generate a minimum of 50 KV and a maximum of 100 KV. We have also been shortlisted for Nidhi Prayas IIT Gandhinagar and also incubation under BIET Jhansi. This shows how compatible and competent we are even at the mere ages of 15-17 and this is why our startup is such capable.



Kaizel Tech

Thank You !

