



Unmanned Life
SUSTAINABILTY REPORT - 2022

Introduction...

At Unmanned Life, we understand that we are a part of an ecosystem relying on natural resources to sustain our operations. The purpose of our company is to engage with different stakeholders and create meaningful values, and as a result, we are committed to a long-term engagement, whether it is for sustaining resources, economic efficiency, or social wellness.

As society already comprehends the increasing impacts of global climate change today, we are in the position to utilise our power as pioneers of rapid digital transformation, automation and augmented human ingenuity to create a positive global change by thinking of future generations. It is incumbent on us as a disruptive digital platform to transform industries, markets, and behaviours to address various sustainability issues; and to lay the foundations for a positive, safe, and responsible digital future.

We hold on to the value of giving back to society in the most meaningful way by ensuring that industry 4.0 can lead the way in combating climate change. Our vision is to change the world for the better with the use of robots and automation by developing the most innovative solutions for decarbonisation, reforestation, and sustainable growth to pave the way for a better and safer environment.

By taking responsibility for reducing our global environmental footprint, we can make sustainability a core strategic goal. Our aim is aligning with the Paris Agreement's long-term temperature goal to limit global warming to well below 2°C by 2030 and continue today without jeopardising future generations' demands.





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At Unmanned Life, We Believe The Future Is Autonomous



Unmanned Life

Unmanned Life's Autonomy-as-a-Service software platform is providing the seamless orchestration of autonomous robotics, changing the way robots are being deployed worldwide. Our solution integrates different technologies such as AI, 5G, and Edge computing with multiple devices, like drones and/or autonomous mobile robots (AMRs), and utilises a variety of capabilities to enable autonomous robotic operations across Industry 4.0 and Smart Cities.

Autonomous applications can provide a breath of fresh air through efficient, sustainable solutions, combatting current world challenges such as climate change, well-being, and safety. Disaster relief efforts, for example, can be optimised with our flexible drone insights and rescue application, saving lives and having a positive impact on society.

Not only does the deployment of unmanned aerial vehicles and robots assist society, but it also helps to reduce pollution emissions resulting from ground or air control, ensuring environmental sustainability.

We welcome members from various geographies and ethnic backgrounds to encourage diversity and inclusion as a fast-growing, sustainable firm. Our organisational procedures and policies incorporate a multi-faceted approach. Diverse perspectives, when welcomed in an inclusive culture, can promote the cross-pollination of ideas and lead to fresh insights that would not otherwise be possible. As a result, innovation, which is one of our company's building blocks, is formed.



The Market

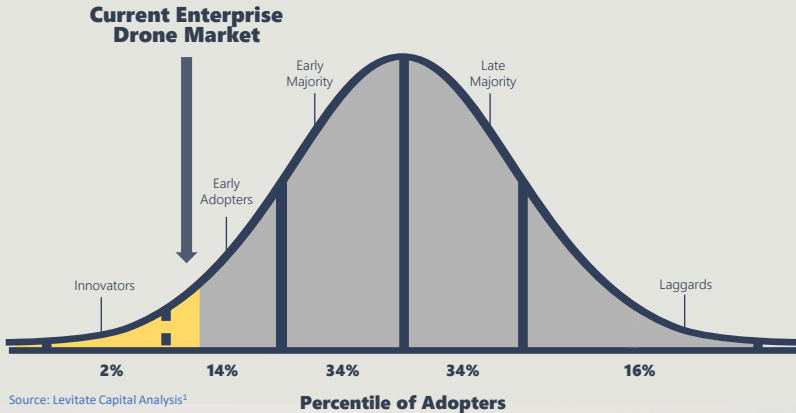
As more industries choose to implement robotisation and autonomous solutions, the scope of our work is continually expanding.

According to Levitate Capital Analysis¹, the present drone market is still in the early stages of technology adoption, and it will continue to grow exponentially through 2025 and beyond.

Drones and other robotic devices are becoming more prevalent in a range of fields, including emergency response, logistics, and agriculture.

The adoption of autonomous robotisation in more industries will have a major economic impact. The most immediate effects will be improved productivity and reduced prices.

Automation, according to the World Economic Forum², and Cann (2022)³, will result in the net employment increase of 58 million by 2030. Automation, according to ARK Investment Management, will boost US GDP by 5%, or \$1.2 trillion, over the next five years⁴.





As the technological competencies of robotic devices continue to improve, the associated benefits and possible applications will keep on expanding

- **Lowering Emissions** – robotisation solutions generate up to 28 times less emissions than the alternatives⁵
- **Lowering Cost** – Up to 10x cheaper than a manual mission, saving equipment costs and wages⁶
- **Improving Quality** – High-value data can be captured, enhancing device capabilities
- **Increasing Efficiency** – Waste reduction due to extreme accuracy and error minimisation
- **Faster** – Immediate response time can be crucial in urgent missions
- **Reducing Humans Risks** – can operate in poor, un hospitable & dangerous conditions
- **Reach Remote Areas** – Services can be provided to areas that were previously unreachable

Our Environment, Social & Governance (ESG) Priorities

Unmanned Life evaluates and identifies new or existing ESG issues that may influence or be influenced by our platform solution. We also keep an eye on the most recent ESG advancements and legislation changes, as well as disclosure requirements and best practices in the sector.

We have selected the following ESG issues as our key priorities :

Environment

- Partnering with organisations to advance sustainable development solutions
- Minimising the environmental impacts of our operations
- Following all the latest regulations and protocols

Social

- Developing solutions that improve quality of life
- Acting in the best interest of our customers
- Promoting diversity and equality

Governance

- Nurturing a culture of transparency and ethical behaviour
- Protecting privacy and cybersecurity
- Protect & promote safe and secure working environments



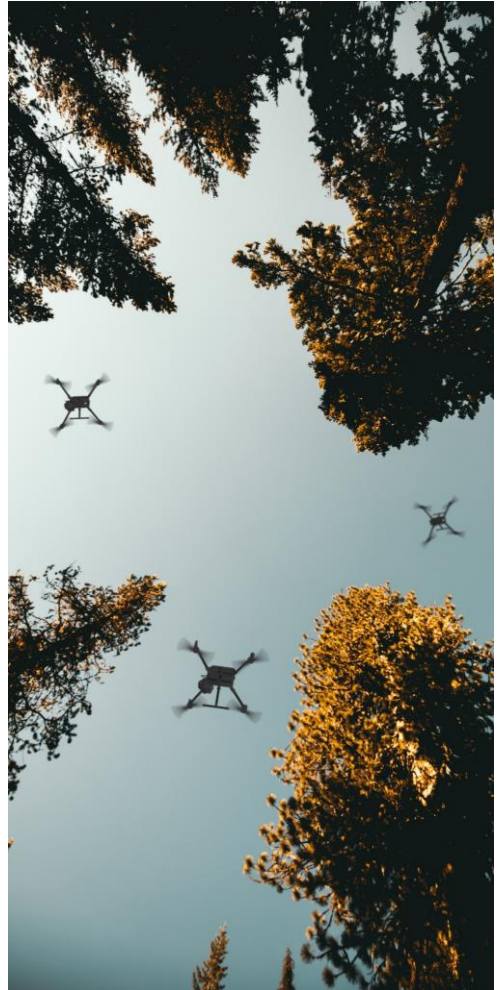
Realising Unmanned Life's **ENVIRONMENTAL** Impact

Economic expansion has come at the expense of the environment during the last two decades. The utilisation of the Earth's natural resources have been inefficient and wasteful, resulting in harmful effects such as poor air quality and global climate change.

Unmanned Life's contribution to environmental sustainability is primarily to cut GHG emissions (e.g., C20, Methane, N20). We regard the two megatrends, **digitalisation and decarbonisation**, as playing a key role in constructing a sustainable future as part of our ambition to become the go-to software company for seamless robot orchestration.

However, in order to assess the environmental impact of drones and robotic applications, it is necessary to review current statistics on global energy emissions that contribute to air pollution and climate change. CO₂ levels in the atmosphere have risen from roughly 275 parts per million (ppm) before the industrial revolution to over 410 parts per million (ppm) in 2020 as a result of human-caused CO₂ emissions⁷, an increase of 50 percent. According to the United Nations, greenhouse gas concentrations are rising far too quickly to keep global warming below the targeted 1.5 degrees Celsius⁸. They are also a major source of air pollutants that have an impact on human health and safety⁹.

According to the data, these AI-enabled autonomous applications can help expedite the transition to a low-carbon society by reducing global GHG emissions by 0.9 – 2.4 gigatons of CO₂ equivalent (GtCO₂e) by 2030¹⁰.





Realising Unmanned Life's **ENVIRONMENTAL** Impact

Partnering with organisations to advance sustainable development solutions

As successful development plans requires inclusive cooperation, Unmanned Life is building strong partnerships with various entities and communicating directly with their sustainability departments to provide solutions. For all of our projects, we are utilising electric and environment-friendly hardware, and we develop our systems based on our principles and values, and our shared vision and goals of putting the nature and the people first.

Minimising the environmental impacts of our operation

As a software-based company, at Unmanned Life we design our solutions to support the environment. Most of the research and development is done in-house as we are taking the carbon footprint into account in the way we design, develop, and deploy our solutions and by rethinking some aspects of how we utilise our resources.

Following all the latest regulations and protocols

As we grow and take on additional projects, it's more important than ever for us to stay on top of the latest developments and ensure we're following all relevant requirements when it comes to controlling our environmental impacts and carbon footprint.





Realising Unmanned Life's **SOCIAL** Impact

Unmanned Life's platform and capabilities are being used for societal good in a variety of ways, including emergency response, medical delivery, and more, whilst collaborating with humans to ensure reduced risks and maintained employment.

The platform approach allows the collaboration between humans and devices, with individuals able to be integrated to the system (Cobots). By allowing humans to be part of the ecosystem, we can reduce risks of working in dangerous environments, whilst increasing efficiency with the collaboration of robotics.

As an example, the Incident and Emergency Management Market is predicted to rise from \$117.2 billion in 2020 to \$156.1 billion by 2025 on a global scale¹¹, owing to the increase in natural disasters as a result of ever-changing climate conditions. As problems spread over the world, services are becoming overburdened, from municipal departments to national governments. Our adaptable drone-based technology aims to improve first-responder speed and efficacy in a scalable and collaborative manner.

The significant hardware benefits of drones and robotics in difficult environments can therefore be upgraded using our platform for societal good. Unmanned Life hopes to gain significant reach across the world to save lives in the coming years.





Realising Unmanned Life's **SOCIAL** Impact

Developing solutions that improve quality of life

Co-operative solutions that drive efficiency are key in increasing individual's quality of life, from cost-effective work with first responders to round-the-clock drone solutions replacing menial or dangerous work. By scaling the solution using our modular approach, we can deploy at a fraction of the cost of leading solutions currently in the market, increasing availability to those who need it most.

Acting in the best interest of our customers

Working in tandem with global partners as well as stakeholders in European Sustainability allows us to guide partners into the most positive social path whilst maintaining the best interests of the customer. By placing the customer's needs first, we strive to provide an innovative service to ensure each solution meets economic, social, and environmental goals.

Promoting diversity and equality

Unmanned Life is committed to bringing new hope and growth opportunities to remote areas by ensuring universal access to basic needs. Using our platform, we can help bring energy, clean water, and medical equipment to areas that are less accessible and use innovation to allow communities' growth.





Unmanned Life's Sustainable **GOVERNANCE**



At Unmanned Life, we aspire to pursue economic value creation with respect to social and environmental goals. As we grow as a company, we wish to incorporate sustainability throughout our ventures which is the reason sustainability governance is an integrated part of the company's overall corporate governance strategy.

Improving society's well-being by utilising our advanced platform solutions is our mission as a company. By establishing our sustainability goals, we have taken the first step towards building a sustainable future. We aim to monitor our SDGs closely and create annual report to ensure we meet our targets.

Unmanned Life's sustainability governance is committed to developing new policies and management systems to ensure our commitments to all the different stakeholders. We maintain an ongoing research and dialogue with all our stakeholders to ensure that our priorities are relevant over time.

We stay committed to diversity, inclusion, and belonging and extend a culture prioritising environment protection, global sustainability and future generations .



Unmanned Life's Sustainable **GOVERNANCE**

Nurturing a culture of transparency and ethical behaviour

As a Start-up, it's critical that we build a foundation driven by ethics and openness. Commitment to greenfield initiatives and establishing a responsible and open relationship with all our partners are among Unmanned Life's ethical foundational building elements that we put into our company's core beliefs.

Protect & promote safe and secure working environments

We operate our business responsibly and sensibly to ensure the company's stability and enable healthy growth while maintaining fair and stable working conditions for all employees, strengthening an inclusive and diverse culture, and encouraging employees to share their passion for environmental sustainability.

Protecting privacy and cybersecurity

We understand the value of data privacy at Unmanned Life, as connectivity is blurring the barriers between what is public and what is private. As a software company, we must ensure that the data we utilise is used ethically, with no personal or corporate data being hacked, stolen, or disclosed.

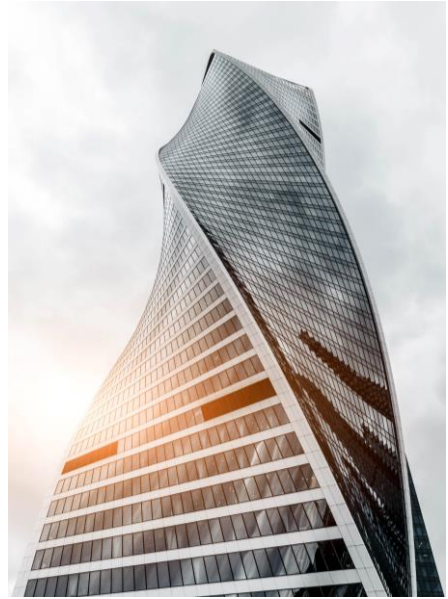


Economic Impacts

In order for our software platform to be scaled, we need to make sure that our solution is both viable and manageable. To do so, we're collaborating with a number of departments to guarantee that our methodology, market fit, regulatory approval, and social and environmental effect are all valid.

Outside of our platform, the network and third-party analytics are the two most important components of our system. To ensure that our platform can be used in all relevant situations, we're working directly with telecommunications firms like Telus in Canada, Telefonica in Spain and Germany, and Etisalat in Middle East to determine network coverage and value implications. This is critical in order to make our platform available to people who require it, hence increasing efficiency and economic growth.

Our long-term aim, as a result of our partnership approach, is to demonstrate the value provided by our platform in a variety of use cases all over the world.



Higher Quality

Integrated with third party AI systems, give high-value data and increases efficiency.



Faster

Direct routes through drones at high speed contribute to a more efficient solution.



Lower Cost

Up to 10x cheaper than a manual mission¹², saving equipment costs and wages

Sustainability as a Software Platform

When scaling, a platform approach brings responsibility, and at Unmanned Life we've defined the fundamentals for every deployment by constructing the foundations with an eye on green and social consequences. We can use our platform in "robots for good," boosting efficiency and giving previously unimagined solutions in emergency response, reforestation, medical deliveries, and more, thanks to our capacity to work in a range of sectors.

Our thirst for social and environmental good grows as we develop. We are expanding our deployments to new heights, leveraging drones to reduce emissions by up to 28x in our use cases¹³, saving lives with scaled emergency response operations, and autonomously planting trees around the world.

We find that these AI enabled autonomous applications can accelerate the move to a low-carbon world with a potential reduction in worldwide GHG emissions of 0.9 – 2.4 gigatons of CO₂ equivalent (GtCO₂e) in 2030, i.e. 1.5 – 4.0% of projected global GHG emissions in the baseline. This implies a potential overall reduction in carbon intensity of 4.4 – 8.0% relative to the baseline¹⁴.



Our Portfolio of Sustainable Product Applications

We have made a preliminary assessment of some of the opportunities that our autonomous solutions can offer, for economic growth and emissions reduction potential:

Reforestation Drones can plant trees up to 150x faster than humans¹⁵; drone technology also allows for thorough reforestation planning by optimising the site of each tree, potentially preventing future wildfires of the same intensity. With wildfires becoming more frequent and intense as a result of climate change, we must approach the problem from a variety of perspectives. Carbon sinks through the planting of trees will be one of the contributions to the targeted global emissions reduction.

Agricultural Crop Management Utilising drone data's high-resolution imaging can be used to assess crop fertility, allowing agricultural professionals to apply fertiliser, reduce wastage, plan, troubleshoot irrigation systems, gain an overview of their fields, and collect data much faster and more accurately than previous techniques. AI analytics can be added for a more intense viewpoint on land management or crop disease tracking to eliminate any wastage.

Fire Mitigation Pre- and post-fire, drones gather critical intel to aid firefighters; drones are particularly crucial for forest fires that tend to get out of control quickly and put both pilots and crew at risk; drones give firefighters a bird's eye view of the terrain and help them determine where the fire moves next, so they can swiftly make decisions about where crews should go and who should be evacuated

Search and Rescue Over land and sea, immediate situational awareness over a vast area is possible; Drones significantly minimise the time and number of searchers or rescuers needed in an emergency, as well as the expense and risk of search and rescue operations.

Logistics – Autonomous Intralogistics, Hybrid logistics, and Sortation significantly reduce CO2 emissions through efficient 24-hour operations, 365 days a year, and contribute through: savings in distribution costs, faster deliveries, possibility of reaching areas that are difficult to access, and security surveillance of large areas

Inspections There are clear cost and sustainability advantages to using drones for inspection over other aerial options; drones can fly over plants, wind turbines, and telco towers to check for technical failures, material loss, or malfunctions; it allows for the detection of structural incidents in plants/wind turbine blades/telco towers and serves as a guide during maintenance.

Drones provide obvious economic and sustainability advantages over alternative airborne inspection solutions, not only saving money but also enhancing safety measures. All data collected by drones can be evaluated and stored for automatic fault management and predictive maintenance for future efficiency.

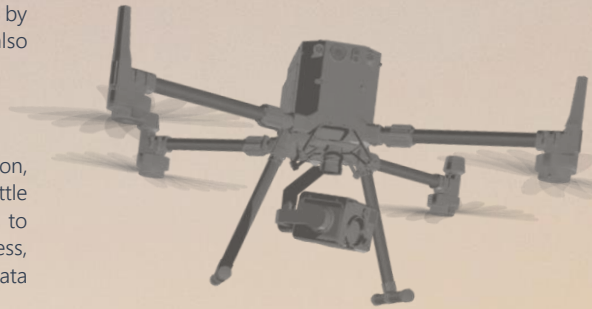
Our Portfolio of Sustainable Product Applications

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Drone Deliveries According to research, drone delivery can lead to a 54 percent reduction in emissions from the 0.92 kg of greenhouse gases associated with multiple package delivery by traditional transportation¹⁶. Drones can also efficiently deliver to rural areas

Surveillance Drones assist with data collection, which is one of the most visible aids in the battle against climate change. Drones can travel to regions where humans cannot readily access, lowering research expenses and increasing data collection accuracy.

Even typical enterprise surveillance is becoming less effective as activities grow. Our drone swarm technology can readily replace manual surveillance missions, which waste both time and fuel.





AGRICULTURE



The Problems

Excessive CO2 emissions: Researchers estimate that agricultural production provides the lion's share of greenhouse-gas emissions from the food ecosystem, releasing up to 12,000 megatons of carbon dioxide equivalent a year. Emissions from agriculture totalled 669 million metric tons in CO2 equivalents during 2019, up 1.1%, or 7.5 million metric tons, from the previous year¹⁷.

Global Product Loss: FAO estimates that annually between 20 to 40 percent of global crop production are lost to pests. Each year, plant diseases cost the global economy around \$220 billion and invasive insects around US\$70 billion¹⁸.

Our Solution

AI-enabled autonomous drone applications can provide a sustainable solution to the environmental crisis caused by the agriculture sector. Through our software's computer vision technology, drones can stream live video and multispectral images that can observe the difference between unhealthy and healthy crops and then notify resources to be deployed accordingly.

Precision agriculture technologies use IoT sensors, cameras, microphones, and satellite systems as well as control and robotics to enable automatic real time monitoring of plant welfare, production and environmental impacts to increase efficiency.

Key Benefits

- Reduction of overall agricultural emissions by roughly 4.3%¹⁹
- Minimisation of product loss through disease.
- Reduced carbon footprint.



WILDFIRE

The Problems

Human/Wildlife casualties: Wildfires that burn near communities can become dangerous and even deadly if they grow out of control. For example, the 2018 Camp Fire in Butte County, California, destroyed almost the entire town of Paradise; in total, 86 people died²⁰. Wildfires Cause More Than 33,000 Deaths Globally Each Year²¹, also affecting the wildlife which loses its natural habitat to the blazing fire.

Air pollution: Wildfires threaten lives directly, and wildfire smoke can affect us all. They spread air pollution over thousands of miles, causing breathing difficulties in even healthy individuals, let alone children, older adults, and those with heart disease and lung diseases.

Burned Vegetation: In case of wildfire permeating deeper under the soil's surface, vegetation can be burnt, and recovery teams expect vegetation to take three to five years to recover.

Our Solution

Our AI-enabled orchestration of robotics works seamlessly together like one unit to resolve emergency response situations. Drones can help gather situational awareness, protect firefighters, and enable mapping for both pre-emptive and pro-active responses. 97–99% Of all wildland fires have been successfully suppressed during initial attack²², evidencing the importance of mitigation and early drone imaging.

Rescue solutions for global emergencies may also endanger the lives of first responders. By leveraging AI enabled autonomous robotics, we can create an efficient support tool for first responders, reducing the risk of serious injury. Unmanned Life aims to build a sustainable societal balance where drones are used in tandem with responders, with the additional bonus of a central user interface for simplicity.

Key Benefits

- Round the clock surveillance and monitoring
- Early response to fire breakout
- Thermal imaging for clarity
- Safety for first responders



LOGISTICS

The Problems

Inefficient machinery: Outdated robotics and legacy systems can consume up to 70% more energy than modern solutions²³.

On-site movement of goods: Factory transportation through just in time production can lead to a 3kg increase in carbon emissions per item moved.

Worker Emissions: The average UK worker emits 35kg CO₂e in indirect greenhouse emissions per day²⁴, including daily work commutes and other human based logistics operations.

Our Solution

Autonomous solutions on our platform can directly reduce labour usage in menial tasks, as well as add the drone layer as an innovative solution to solve complex problems. The orchestration and connection of drones and AMRs complement existing workers with a centralised interface for an exponential increase in existing output, whilst slashing carbon emissions from almost all indirect and direct sources associated with logistical production. The hardware agnostic nature of the platform means robots can be updated to the latest, greenest technology with ease.

Key Benefits

- Operational cost reductions
- Increased efficiency through autonomous processes
- Lowering Direct and Indirect Emissions
- Ease of upgrading to greener hardware through the platform



EMERGENCY RESPONSE

The Problems

Increasing Frequency of Natural Disasters: On a global scale, the Incident and Emergency Management Market size is expected to grow from \$117.2 billion in 2020 to \$156.1 billion by 2025²⁵, contributed by an increasing level of natural disasters through ever-changing climate conditions. The world needs a faster, cost-effective and safer emergency tool to combat the global crisis.

Lack of Visualisation: Hard to reach environments leave little scope for visualising an emergency, leaving first responders in the dark.

Ineffective Communications: Decentralised systems means a fragmented approach to responding to, and monitoring, an emergency. Confusion in an urgent situation can slow down response times.

Our Solution

As the world is witnessing a technological advancement with drones' introduction the public sector is also making use of the innovative revolution. The cutting-edge technology of drones, coupled with artificial intelligence, makes it methodically systematic and productive for relevant purposes. Our flexible drone-based solution looks to address the speed and effectiveness of first response in a scalable and cooperative way.

User experience is at the heart of our platform, complementing emergency rescue with a visual tool to help save lives and ensure the safety of responders. At the heart of the solution, responders select an area, and drones autonomously calculate efficient routes before launching as a swarm to provide a bird's eye view of an area. Each drone is equipped with relevant payloads, from high quality cameras to thermal imaging. The UAVs then offload data to the edge, and Unmanned Life's proprietary AI or integrated third party AI analyse the videos in real-time for person or object detection. Additional drones can be added to the system at the press of a button for larger coverage.

Key Benefits

- Saving more lives at faster speed
- Significantly reduced emissions
- Lower Cost
- Reduced personnel on-the-ground
- More Accurate



DELIVERY

The Problem

Inaccessible Goods: Developing countries are facing famine, epidemic diseases, poverty and many other challenges. This has been exacerbated by Covid 19 pandemic. For many people, especially those in rural areas, access to medical goods at smaller health facilities is difficult due to frequent stock-outs and wastage due to the lack of consistent power disrupting the cold chain.

Many developing countries are also prone to drought causing a shortage of food and water. This poses a greater challenge to access affordable and healthy food. Drones can be successfully employed as a delivery vehicle and reach remote/rural areas, saving thousands of lives.

Our Solution

Drones cater to a humanitarian need and improve the quality of life. In remote areas – medical services often take long to respond and to reach a patient. For a patient who is bleeding heavily, the difference between blood being delivered by drone in 30 minutes or being delivered by motorcycle eight hours later can be life or death. Drones are increasingly used to help deliver aid, medicines and vaccines in remote or cut-off areas

At Unmanned Life, we use drones that are equipped with payload strong enough to carry medical kit, food box or rescue devices like a life jacket to name a few. Our platform enables a swarm of drones to work together seamlessly as one work force allowing transportation of life-saving supplies between two sites. As fast and efficient alternatives to using road transportation to cross unreliable terrain, drones can get to these places in minutes and with minimal risk of contamination.

Key Benefits

- Reducing fuel burn and carbon emissions
- Identifying potential hazards
- Reducing costs
- Saving times on rework
- Reducing manpower requirements
- Reducing maintenance frequency



WIND TURBINES INSPECTION

The Problem

Maintenance Challenges: Wind turbine components are forced to endure rain, snow, lightning and dust causing cracks, damages and corrosion to the parts of wind turbine. This requires preventive maintenance at least three times annually making it one of the key factors that slows down the adoption of this energy solution. The size further increases the difficulty in the ability to inspect and maintain.

More than 3 people are needed to be on site²⁶ resulting in high labour, training and insurance costs due to risk factors involved. Suffice to say, that the traditional method to investigate is expensive, slow and not very safe.

Our Solution

Deployments of autonomous drones equipped with high resolution cameras could provide an answer to the copious maintenance difficulties when deciding to move to a wind turbines-based green energy. Using Unmanned Life's platform, drones can routinely perform check-ups and quickly identify hardware failures, cracks erosion and other issues while minimising impacts on operation time. The ease of usage can prevent high costs for gearbox failure that can cost up to \$500,000 per incident. Using drones for inspection can dramatically increase the number of daily inspections, reduce operation risks, and encourage the instalments of more turbines.

Key Benefits

- Reducing emissions through heavy machinery
- Reducing costs by up to 70%²⁷
- Provide 360-degree inspection
- Saving times on rework
- Reducing manpower requirements
- Minimises risk of injury to site inspection and operation teams

Appendix

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