Area X.O — Drive the Future

Nesting Safe

The Story

Nesting Safe, a pioneering force in environmental data collection for turtle conservation, was founded in Montreal in 2016, but its roots stretch back to Norway. The company's genesis stemmed from the deep involvement of its co-founder and CEO, John Bonardelli's background in marine ecology research. Bonardelli recognized the urgent need for innovative technology to monitor turtle nests amidst the challenges posed by climate change.

Leveraging a fusion of marine expertise and technological innovation, Nesting Safe developed advanced solutions, including their digital nest monitoring system, to track turtle nesting events accurately. The company provides advanced technology solutions that simplify environmental data collection, to quantify and support the impact of turtle conservation initiatives. Nesting Safe creates tools, including their digital nest monitoring system, to monitor turtle nesting events in order to anticipate where and when hatchlings will emerge.

Nesting Safe

The Obstacle

As a Marine Ecologist, Bonardelli became aware that turtle nests were being affected by climate change. Over 6,000 beaches around the world were being monitored by public and private organizations and researchers had identified that turtle eggs were overheating in the nests and that the heat in relation to climate change was playing a role in the determination of the sex of the turtles.

The challenge faced by Nesting Safe was to develop a communication protocol that could transmit data wirelessly through soil to deeper depths, overcoming the limitations of traditional wired systems and minimizing soil distortion caused by sensor installations. The company was looking to expand its research beyond field observations by using simulations in partnership with Area X.O, operated by Invest Ottawa.

Nesting Safe turned to Area X.O, Ottawa's smart mobility R&D complex, to develop simulations to test factors involved in the turtle nest monitoring technology. The simulations of Nesting Safe's system allowed the company to further develop data on variations of monitoring signals in the soil with the goal of automating using machine learning. The simulations were able to mirror signal strengths in different environments and different substrates. The simulations could also visualize where signal loss would happen in real-life scenarios. Density, soil types, vegetation and other obstacles could be mirrored in relation to different antenna variables and more.

The Solution

Though the simulation project, one of the key objectives was to address the challenge of transmitting sensor data through soil, ensuring an unbiased data collection critical for effective conservation efforts. The simulations of Nesting Safe's system allowed the company to further develop data on variations of monitoring signals in the soil with the goal of automating using machine learning.

Nesting Safe was able to gather more data on changes in soil monitoring signals, with a final objective of automating using machine learning. The models were able to mimic the signal intensity across various substrates and settings. The simulations were able to mirror signal strengths in different environments and different substrates and also visualize where signal loss would happen in real-life scenarios.

The Update and the Future

Nesting Safe has significantly progressed based, on the support received through Area X.O's simulation team, and has transitioned from conceptualizing solutions to practical implementation. The project allowed Nesting Safe to advance from field observations only to incorporating simulations to enhance their understanding of signal attenuation and data propagation through different substrates.

Nesting Safe has gained insightful knowledge that will help them move forward in revolutionising the agtech industry thanks to the project. The simulation project proved invaluable in grounding their field observations empirically, and guiding their next steps. With increased investment, the company is looking to implement new innovative solutions like temperature and humidity sensors for turtle conservation.

Nesting Safe is moving towards securing smart equity investment to scale up their operations. Future plans involve licensing out their communication system to sensor manufacturers and revolutionizing agtech and conservation by providing comprehensive, precise microclimatic data for better agricultural decision-making.

Testimonial

“For agtech companies with good potential and technology at the startup phase, working with Area X.O can help you validate what your questions should be and what the answers are. When you're at the forefront of technology, my attitude is, you just need help and support to get the constructive feedback by working with dedicated professionals.”

— John Bonardelli, Co-Founder and CEO, NestingSafe

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Nesting Safe

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