Fish and Chip Drone Defender

Deep Innovation Report

Executive Summary

This proposal outlines a coordinated micro-drone deterrent system designed to protect seaside diners from scavenging gulls, enhancing the outdoor dining experience in BCP's coastal towns.

By deploying lightweight, non-contact autonomous technology, local eateries can reduce food waste and improve customer comfort while establishing BCP as a hub for real-world robotics testing.

The Better Everyday

What if coastal dining tables could be actively protected from aerial scavengers through smart, non-contact deterring technology?

- The Fish and Chip Drone Defender is an autonomous, lightweight micro-drone system designed to protect seaside outdoor diners from aggressive gulls. Operating seamlessly above dining areas, the micro-quadcopters utilize computer vision to detect incoming pests and deploy non-harmful ultrasonic frequencies to guide them away.
- Picture a sunny afternoon on Poole Quay in 2030, where families enjoy fresh fish and chips outdoors without having to shield their food or watch the skies in fear. Drones hover almost imperceptibly above the tables, stepping in only when a bird swoops down, so that diners can focus entirely on enjoying their food and company.
- This meets the enduring human need for relaxed, safe social dining in scenic outdoor spaces, which is currently compromised by aggressive scavengers. Today, people use crude workarounds like waving menus, hiding under umbrellas, or retreating indoors, all of which diminish the pleasure of visiting coastal towns.
- By turning micro-airspace safety into a reliable hospitality service, this concept could change what people expect from other shared public environments. Similar autonomous safety guardians could eventually be adapted to manage litter control, support beach safety monitoring, or assist with visitor management in crowded parks.

Who It Could Matter To

Securing outdoor spaces benefits local diners, restaurant owners, and visitors seeking a relaxed coastal atmosphere.

The Coastal Restaurateur

- Marcus runs a busy seafood spot on Poole Quay with extensive outdoor seating that is highly seasonal.
- He encounters the drone defender system when seeking a way to reduce food replacements and customer complaints caused by dive-bombing seagulls.
- He gains a reputation for offering the safest, most comfortable outdoor dining experience on the quay, provided the drones are quiet and do not bother guests.

The Anxious Family Parent

- Sarah is a mother of two young children who love eating chips outdoors but get terrified by large, aggressive birds.
- She encounters the system when looking for a seaside lunch spot where her children can eat peacefully without being startled.
- Her family enjoys a stress-free meal, building positive seaside memories and encouraging them to spend more time in local town centres.

The Tech-Sceptic Local Resident

- Arthur is a retired Poole resident who values peaceful coastal walks but worries about privacy and noise from new gadgets.
- He encounters the drones while walking along the promenade and watching them interact with the birds.
- He accepts the technology once he realizes the drones remain strictly local, make no audible noise, and do not record personal data.

What This Could Change for BCP

Introducing automated airspace management could redefine BCP waterfronts as safe, modern, and highly attractive destinations year-round.

- The local connection: BCP has a large visitor economy with seasonal demand, where outdoor dining on Poole Quay and Bournemouth seafront is central to the area's charm. Combining this with the region's established digital and tech sector, supported by the Silicon South network, creates a unique testing ground for hospitality robotics.
- The direct effect: Outdoor dining venues would see increased revenue and longer seating times during shoulder seasons. Diners would stay longer and spend more, confident that their meals and children are safe from scavenging pests.
- The ripple: Successful deployment could establish BCP as a pioneering hub for micro-airspace management and civic robotics. This reputation could attract specialist drone startups and research partnerships to Bournemouth University and Arts University Bournemouth, creating year-round skilled jobs.
- The trade-off: While outdoor diners and businesses benefit, some animal welfare advocates might worry about the impact of ultrasonic deterrents on local bird populations. A clear decision-making process would be needed to set operating hours and ensure the drones do not disrupt protected nesting areas in nearby Christchurch Harbour.

Who Must Connect

To move from a novel concept to a reliable service, robotics innovators must collaborate closely with local hospitality leaders and regulators.

- Delivery: A specialized drone technology startup would partner with a coalition of Poole Quay restaurant owners to run the service. The startup provides the hardware and flight software, while the restaurants provide launch pads, power, and daily operational oversight.
- Participation: Local diners and resident groups would participate in design workshops to shape the drone's behavior and aesthetic. Their feedback would ensure the devices look friendly, operate quietly, and do not feel invasive to people sharing the public space.
- Enabling: BCP Council's licensing and environmental health teams would provide the necessary permissions for micro-drone operations over public pavements and dining areas. They would work with Civil Aviation Authority representatives to establish a safe, low-altitude flight corridor.
- Sustaining: A business improvement district or a collective of seafront businesses would fund the ongoing maintenance of the drone fleet. They would pay a monthly subscription to the technology provider, offset by the reduced cost of replacing stolen meals and increased table turnover.
- The missing link: The critical relationship is between the drone developers and local wildlife protection groups, who currently have no formal channel of communication. The technology startup must make the first move to share safety data and co-design the ultrasonic frequencies to ensure gulls are deterred but not harmed.

Why This Fails

A high-tech solution in a dynamic coastal environment faces significant barriers in battery life, public trust, and weather resilience.

- **High maintenance overhead**: The drones suffer frequent battery depletion or mechanical wear from constant wind resistance along the coast, leading to high repair costs that restaurants cannot sustain. The early warning sign is a growing pile of grounded, uncharged drones sitting in restaurant backrooms instead of patrolling the tables.
- **Public privacy backlash**: Diners and pedestrians feel uneasy about cameras hovering near them, suspecting that their personal conversations or faces are being recorded. The early warning sign is a drop in outdoor table bookings and negative social media posts criticizing the venues for intrusive surveillance.
- **Gull habituation**: The local seagull population quickly adapts to the ultrasonic noises and tactical positioning of the micro-drones, rendering the deterrent ineffective. The early warning sign is birds ignoring the hovering drones and successfully snatching food right in front of the active devices.

One Experiment to Start

Before building fully autonomous quadcopters, you must test whether simple physical and sonic interventions actually deter seagulls in a real outdoor dining setup.

- The primary uncertainty is whether seagulls are genuinely deterred by micro-sized aerial movements and ultrasonic sounds, or if they will simply ignore them when food is present. If seagulls are unaffected by small drones, the entire autonomous robotics system becomes an expensive, ineffective novelty.
- The proposed experiment would run for two weekends at a single outdoor cafe on Poole Quay using a simulated drone. A dummy drone with a manual fishing pole tether and a small speaker playing the target ultrasonic frequency would be operated by a researcher whenever seagulls approach dining tables.
- Keep going if seagulls consistently steer clear of the tables when the simulated drone and sound are active, showing a clear change in bird behavior. Stop or rethink if the gulls bypass the dummy drone entirely or if diners express annoyance at the sound, indicating a need for alternative deterrent methods or better audio isolation.
- **Next step:** A local restaurant owner on Poole Quay could partner with a robotics student from Bournemouth University to build the dummy tethered drone and run the two-weekend pilot.