Upteko
Creating the future of drone systems
Vision
To radically improve the maritime sector through innovative drone technology

Mission
To become the No.1 supplier, developer, and operator of drone systems for offshore operations, by adapting to the needs of our customers throughout every step of the process, with an agile approach

Uniqueness
What makes Upteko unique is our ability to develop software to solve a range of maritime challenges. By combing our knowledge of autonomous drones and the maritime sector, we are building the first autonomous drone system specifically for the maritime industry.
The Upteko drone system

• **Software/Applications.** The ambition is to build an ecosystem of possibilities, where the drone system can be used to build and implement applications across all industries. Through the system a crew on a vessel will be able to ask our drone to perform a variety of tasks, like inspections, assistance in docking or search and rescue missions.

• **The Drone.** There are no drone systems on the market today, that are custom made to serve the maritime industry. For this reason, Upteko is developing the first drone, focused on serving the maritime sector. The drone is safe, robust and built for the maritime environment and harsh weather, and customizable to include different payloads for different applications. The drone can operate in temperatures between -10 and +45 Celsius degrees.

• **Charging Station.** Is made for being installed in a harsh environment on large vessels or other suitable platforms across industries. The system can be installed on vessels without interfering with existing safety system and it allows the drone to autonomously dock itself for charging and storage when it is not performing its operations. All equipment will be internationally certified for the maritime industry.
Vessel docking

**Challenge.** Now, vessel docking is done with assistance from a local port pilot, with tugboats and ropes, and can take up to a few hours for a large container ship. However, the assessment from the ground does not provide sufficient overview to avoid collisions. The lack of aerial overview is a problem for large ships in busy ports. Any contact between the vessel and another object can result in hull damage, which is hard to detect and costly to fix. Whilst this is a problem for the vessel itself, there is an added risk of damaging third party property.

**Our Solution.** Precision docking via real-time imaging creating a ‘parking sensor’ for the ship. The captain has an overview of the distance ship-port, and the relative distance to nearby objects. This will save time (thus fuel) and make the docking of the ship safer and more reliable (savings on ship damages). DFDS and Wärtsilä have shown serious interest in this application, and we plan to run a pilot test with them.

The videos to the right show how the docking procedure work. We created the video to illustrate the potential after doing flights with DFDS on Crown Seaways.

**Current status.** Under development

**Expected finalization.** Nov 2020

**Value Proposition**

- **Time saved:** 20% faster
- **Fuel saved (approx.):** 50% reduction
- **Costs saved:** Reduced fuel consumption, less possibility of accidents and damage to port infrastructure.

**How:** The captain is provided with a bird’s eye view of the ship in the harbour, complete with distance specifications from obstacle points.
Search and Rescue

**Challenge.** All ships are required to have man overboard (MOB) alert systems, and rescue ships. Cruise ships, which carry large numbers of passengers and crew (approx. 5,000) use cameras to detect MOB situations. In a MOB event, a flotation device is thrown, alarm raised, followed by an emergency turn, and/or the launching of a rescue ship. However, if the MOB situation is not detected instantly, the drowning person will not receive a flotation device in time. As it takes 5 mins to launch a rescue boat, and a person can only survive in cold water 10-15 mins, every minute saved can potentially be life-saving.

**Our Solution.** If a person falls overboard the captain will be able to activate the Upteko drone's SAR functionality. This will enable the drone to backtrack the path of the ship and with a thermographic camera the drone is able to detect a person that has fallen overboard. The drone will drop a payload with a flotation device, send back a signal with the location of the MOB and place a beacon above the position, so the rescue team quickly can initiate the rescue mission.

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**Current status.** Under development

**Expected finalization.** Nov 2020

**Partners.**

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**Value Proposition**

- **Improved safety and time reduction:** Immediate activation of the drone at the onset of the alarm saves the time taken by a rescue boat and/or a helicopter to start the operation and increase chances of finding the missing person.

- **Additional benefit:** Thermal camera imaging helps identify MOB subject even in harsh weather and low light conditions and flying high above the water surface means that it is easier and faster to find the person.
Why we joined ESA BIC DK

- Want to use Galileo Satellites for precision landing of drone.
- In the maritime environment we have limited access to land-based infrastructure, which is why a satellite-based system is the optimal solution.
- Our solution will be independent of non-European technology.
- The satellite system will enable a second layer of safety on top of vision technology to determine location of drone.
- Access to new technologies.
- Support on developing our business model.
Thank you for your attention.

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