

VHF Casemate

A VHF enabled waterproof smartphone casing



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New Technology from DIT



A novel waterproof and shockproof VHF enabling smartphone casing

The VHF Casemate is a design for a waterproof and shockproof smartphone casing which enables VHF (Very High Frequency) radio functions through a smartphone.

A VHF radio is an essential tool for all marine enthusiasts as it has a reliable signal and can be easily tracked. The VHF Casemate is designed to make it easier for those users by integrating

two technologies into one. A typical smartphone will have poor signal at sea and does not have VHF capacity. With the VHF Casemate users can now take one device with them on their voyage instead of both their smartphone and a bulky VHF radio handset.

It is intended that the VHF Casemate will improve the speed of rescue in case of emergencies at sea, where lack of communication is a significant cause of loss of life.

The technology integrates VHF electronics directly into the phone casing, which can be manufactured in

a standard way to make it waterproof and shockproof. The smartphone slides into the case as normal and connects with the 3.5mm jack. An accompanying app allows the user to interact with the case's VHF functionality without any other signal being received by the phone; users can select channels, volume and other content.

The device works by passing audio inputs from the smartphone's microphone through the VHF antenna embedded in the casing.

Applications

The object of the VHF Casemate is to simply make life easier and safer for leisure mariners. Users of the VHF Casemate can use their smartphones as an alternative to bulky VHF radios.

With large scale adoption of the VHF Casemate, instances where poor communication is a barrier to safety at sea can be significantly reduced.

Opportunity

The market opportunity for the VHF Casemate is within the marine tourism sector. Marine tourism is defined as angling, coastal and inland leisure boating, water sports and cruise liner holidays. The leisure boating and water sports segments account for the primary opportunity.

Marine Tourism is the second largest marine sector in the world with an estimated worth in excess of €200 billion. Europe is an important market, accounting for approximately 30% of this sector. Historically, the sector sees consistent growth, typically in the 2-4% region.

The Paddle Sports segment of the market presents a significant opportunity as a beachhead for commercialisation of the technology. Last year in the UK alone, more than two million people participated in paddle sports including canoeing and kayaking. The easy-to-use and slender nature of the VHF Casemate will make it is easy for users in this segment to adopt.

Advantages

VHF Casemate offers a number of unique features:

- **Reliable Communications** - telephone and 3G signals are unreliable and inconsistent at sea while the integration of VHF into a phone results in more effective communication.
- **Emergency Location** - the device allows rescue teams to track the phone signal.
- **Distress Calls** - the device facilitates an open distress call which can be picked up by surrounding vessels.
- **Combined Functions** - the device simply combines the function of two necessary items (a waterproof case and a VHF radio) into one unit.
- **App Development Options** - additional features such as weather mapping can be built in.



1. Slide the phone into the case, which connects with the 3.5mm jack.



2. Connect the 30 pin connector, enabling the app to change the VHF channel and charge the phone.



3. Seal the device and launch the app. The phone is now water tight and can be controlled by the app.

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Stage of Development

The VHF Casemate was developed as a student led project, emerging from the Product Design team in the School of Mechanical & Design Engineering at DIT Bolton Street.

DIT is currently seeking expressions of interest from companies interested in licensing and developing the product.

An initial patent application for 'An apparatus for adapting a mobile phone for VHF radio communications' was filed in 2013 - GB1314709.5. A PCT patent application was filed in 2014 - PCT/EP2014/067367.

Initial prototyping using 3D printing has been carried out. Initial electronics prototyping and a basic app have also been developed for proof of concept.

Further development work by a business partner will likely be required on product development, engineering and commercial scale production. Software development may also be useful to refine the app. Branding, distribution partners and routes to market are other considerations.

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