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COASTAL BORDER MONITORING SYSTEM FOR FISHERMEN USING GPS

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ABSTRACT

An embedded system is a special-purpose Computer system designed to perform dedicated function. Unlike a general-purpose computer, such as a personal computer, an embedded system performs one or a few pre-defined tasks, usually with very specific requirements. The main aim of our project is to identify the zone. The GPS receiver is used only to receive both latitude and longitude positions. The position received by the GPS receiver is given as an input to the processer. The processed data is transmitted to a device in which it consists of transceiver (transmitter and receiver). The device receives the data from the processer and retransmits the data to the local area network (LAN). For this we use "loon concept". In the land side the position is viewed with the computer and the movement of vessel can be watched. The transmission is stopped by tuning of transceiver, therefore there will be no connection between the vessel and the local area network (LAN).

Keywords: - (LAN) local area network, (GPS) Global Positioning System

1 INTRODUCTION

The proposed system is used to monitor the maritime boundary of the country. This mainly happens when fisherman crosses maritime border of neighboring country as he is not aware of the limits in sea. The proposed system is used to monitoring the boat. This system uses a GPS receiver which receives signals from the satellite and gives the current position of the boat. With already known details of the latitude and longitude of the maritime boundary, details were sent to the owner of the boat through an transceiver. Here we use Google map for monitoring the location details. If the boat travels near the border of the country, the owner can monitoring the official person in the boat of can prevent them from entering into other country's border.

It also uses a message transmitter to send message to the base station which monitors the boats in the sea. Our system is to monitor movement of the vessel in the coastal area. Thus the system saves the lives of the fisherman or reduces the damages caused to them by Lankan coast guards.

The model effectively outlines the purpose and effectiveness of board pooling and also makes it more appealing by enabling users to share their ride with their friends and relatives and restrict others. This feature encourages board pooling in less developed areas of the world where possession of a board is not very common.

Block diagram

EXISTING METHOD:

Blighter Surveillance Systems delivers an integrated multi-sensor package to systems

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integrators comprising the Blighter radars plus cameras, thermal imagers, trackers and software solutions. Its ITAR-free systems are used worldwide in commercial, government and defiance markets in area and asset protection for national border security, homeland security, critical infrastructure protection such as airports, seaports, dams and harbors, and in military applications. Blighter radars are optimized for coastal and harbor security to detect small and slow moving targets under poor environmental conditions. Blighter is not a VTS or marine channel surveillance radar, though it does provide some of the key capabilities of such radars.

Fig 1.3.1- Blighter coastal security radar (Point Loma, San Diego, CA, USA)

The fig 1.3.1 shows the Blighter coastal security radar system. The Blighter radar builds on the heritage of the original Blighter Ground Surveillance Radar, but adds new features that allow it to offer unique capabilities for coastline surveillance for security applications. Blighter includes a sea clutter filter able to remove the unwanted radar signal produced by waves using both velocity and amplitude characteristics. Blighter radars also extract non- moving targets from their Doppler signal processing systems allowing them to detect static boats that are moored up or drifting. The Blighter radar is based on state-of-the-art set of technologies. Blighter uses a PESA (Passive Electronic Scanning Array) antenna system allowing it to scan up to 360°, in steps of 90°, in azimuth with absolutely no movement inside or outside of the radar system. With no moving parts and entirely solid-state technology, Blighter offers ultra-high reliability, a long maintenance interval of up to five years and an in-service life of up to 15 years.

Blighter's PESA e-scan modules use a unique waveguide structure to achieve the azimuth beam steering. Unlike traditional AESA (Active Electronic Scanning Array) antennas, which use multiple power-hungry power and phase control elements, Blighter's unique PESA units require just one efficient transmitter and one receiver unit per radar unit. Due to this compact and simple architecture, Blighter uses e-scan modules on both the transmit and receiver paths resulting in exceptionally low side lobe levels, which allows the radar to operate in complex environments such as dockyards and harbors without detecting phantom targets from large targets outside of the radar beam.

PROPOSED METHOD:

In our project we are going to monitor the vessels on Google map. For this we use loon concept where we are going to transmit and receive the data where ever the vessels moves. The coordinates are can be seen on the map. The ARTUINO Processor is used to sync the output from the Global Position System (GPS) receiver in the boat, is dumped to in the Advanced Risc Machine. the GPS latitude and longitude values are processed by the ARM Controller and then transmitted from the transmitter

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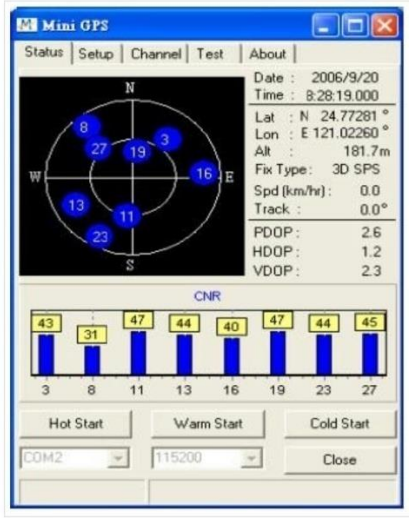
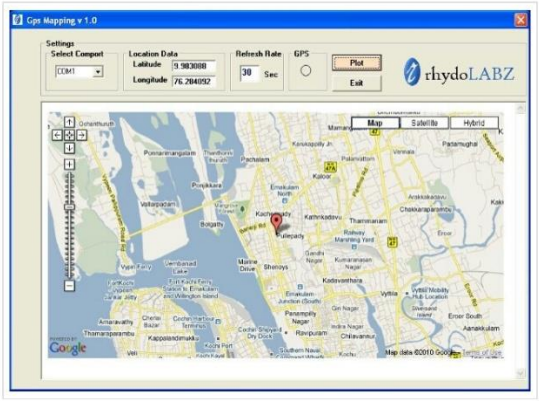
connected with the ARM Controller. The transmitted signal from the boat transmitter is synchronized with the Google viewing GPS data. Keep all other setting as described eariliermap and the location is monitored by the users with the receiver at the other end. With the telemetry to monitor the movement of the boat, the movement of the boat is displayed as a dotted path line in the telemetry (mobile) or (laptop).

When making connection from laptop or pc using the USB proton need to give any external power as the power for the device operation shall be derived from the USB itself. When working out through USB no other connection from the device is required. Select the appropriate COM port from the device manager. When you connect the device it will appear as shown below:

So In this case you can use COM5 in hyperterminal for viewing GPS data. Keep all other setting as described earlier. THE INSTALLATION procedures for the GPS USB dongle from rhydoLABZ and can be found. with the help hyperterminal or any other terminal software, you will only be able to see the full NMEA protocol coming in ASCLL formet, a more convenient way will be use the mini GPS.



For using the rhydoLABZ software you need to have net connectivity. Select appropriate COM port from "select computer". The latitude and longitude details will be shown if the device is connected and the comport selection is correct. Lnitially the software will be shown the rhydoLABZ office location. Now you can simply click port at this you will be able to see your location.



CONCLUSION

The hardware and software design of an embedded monitoring system for real time applications is presented in this project. GPS tracking system which will track the current position of the boat and show it to the user who wants to travel by

boat. Improvements that can be done in this project are that it can be integrated into ships and its workers,captain and passengers and their locations can be constantly monitered.Moreover the condition of the engine such as its temprature,current capacity etc can be integrated into the app.

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