

The Role of Embedded System in Boat Security and Tracking

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Abstract - Embedded systems are being used extensively in today's world. Using the embedded system technology we can diminish various sorts of accidents happens with ships, like the fishing boat Naved-2 went missing on October 26, 2021 in the Arabian sea of the Ratnagiri coast. Individuals work in seaside regions absolutely relies upon fishing occupation in the ocean. Crossing the line is being treated as a genuine offense. Because of ignorance about as far as possible, the angler used to cross the oceanic lines. Once they cross the line, they captured or killed by the pertinent naval force and their boats are being caught by the local nation's beach front gatekeepers. To dispose of such hardships a framework has been created which assists the anglers with monitoring crossing the fringe. Line ready framework for angler utilizing GPS is one such framework which safeguards the anglers by telling the nation line to them by utilizing Global Positioning System (GPS) and Global System for Mobile Communication (GSM). Region based alert organizations are essential parts for angler, on account of horrible environment conditions and loosen of development in rescue support our fisherman's facing a lifetime issue with neighborhood countries. On considering the issue we proposed a negligible exertion and basic environment Alert structure for fisher's which is used to follow their relatives, buddies and different fishermen if some fisherman standing up to any issue like unforeseen environment changes or emergencies mean this system will uphold the fisher. Sometimes fishermen face accidents due to overloading. To eliminate such accidents our proposed system, provide alert. So, in case of overloading, an alarm is set & the admin is notified instantly so that appropriate actions can be taken afterwards.

Keywords: Boat Sinking, GPS, Sensor, Fisherman, Alarm System, GSM.

I. INTRODUCTION

Naved-2 with six- member crew had gone out into the Arabian Sea from Jaigad on Oct 26. But when contact was lost with the boat, the owner had informed the Ratnagiri district administration. The local administration carried out search of the area with speed boats, but failed to trace any wreckage [3]. To overcome such incidents, we proposed a boat security and tracking system.

II. OBJECTIVES

- 1) The proposed system provide border crossing alert using GPS.
- 2) The system will notify weather alert to the fishermen.
- 3) The system will provide overload alert.
- 4) The system alert the fishermen before their boat became starts sinking using water level deck alert.
- 5) The system will track current location of boat and sends data to the control room as well as connected devices.

III. SURVEY ANALYSIS

After getting information about what type of difficulties are faced by fisherman or ferry boat man we decided to use survey technique and we went to fisherman's place to know more realistic situation of their security when they went to fishing or working purpose. After that we contact some fisherman and ask them what difficulties are you facing? They said so many times we crosses the country boundary lines and boat sinking, weather related too, Also ask about do you have any facility related to boat safety? Few of them said no we are not using such a types of but few of them said yes we are using jackets, Rope And keep a small boat aside.

And when you go for fishing in that time if any disaster will occur in front of you the how can you face? They said at that time we use that what we have on boat Lastly we ask them that if we give you a system that will overcome such types of problems that you are going through then it will be beneficial for you? They said yes absolutely it will be beneficial for us after surveying there are so many positive survey and few negative too.

IV. METHODOLOGY

The fishing boats deals with such countless issues in regards to their boat security, as of late In Maharashtra, for example, an episode happens Naved-2, a fishing boat that went fishing in the Jaigad Ocean, sank on 26 October. Six of the seven mariners on board are as yet absent. Anglers are stressed over the vanishing of the boat in the Jaigad Ocean. Shockingly, Naved-2 boat sinks when no tempest in the ocean? This question is available. Also most recent one transient boat sinks off Tunisia were 6 dead and 30 individuals are as yet absent. Such kind of mishaps related boats are increments.

By studying on such a types of boat accidents, we decided to use first descriptive method of research. In descriptive research describes certain present condition. The technique were we use under descriptive research is survey. After survey, we collect all the problems and start working on them. While working on it there are obstacles related safety in front of us such as boat sinks, overloading, water deck also so many times boat crosses country boundary line, contact issues so we are proposing a system that will fulfill all the problems related boat safety. Below we mention minimum requirements of equipments that need to be used in proposed system.

1. GPS:

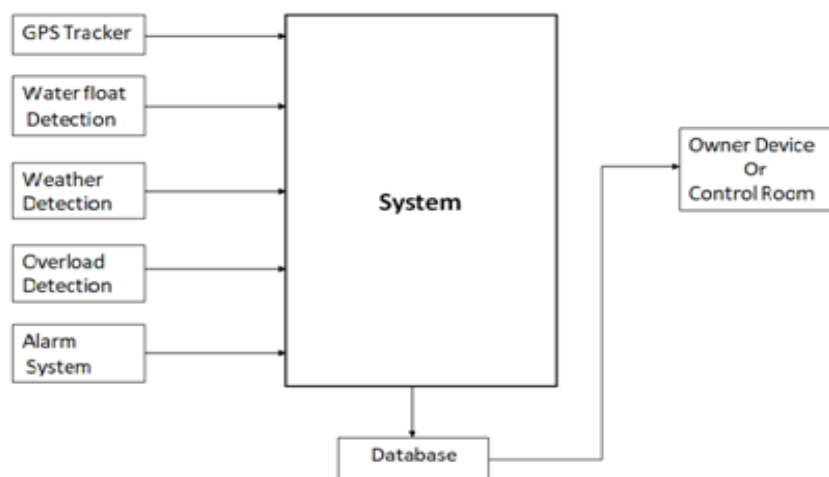
GPS gives information on where the vessels are going, the USSG involves this information in their correspondence with the boats, furnishing them with precise data in regards to their position and headings they should follow to arrive at their objective and furthermore angler can involve this for don't crossing limit line.

2. Sensors:

- 1) Wind Sensor: - To detect wind speed and direction the sensor is used such as WMT700 wind sensor.
- 2) Temperature Sensor: -This sensor sense when boat engine's temperature rises hence it will buzzes an alarm.
- 3) Weather sensor:- To detect multiple precipitation types using PWD20/22 weather sensor
- 4) Lightning sensor: - To detect In-cloud and cloud-to-ground lightning within 30 nautical miles using TSS928 sensor.
- 5) Overload sensor: - Detects and reduce the overload problem of passenger and Container ships.

3. Alarm system:

This system works as alert when some disaster comes and our sensors will detect that then it will give alert by using alarm system.



Flowchart: -Boat Security and Tracking system

V. BENEFITS TO THE SOCIETY

- 1) Our proposed system will be helpful for society or when fisherman went for fishing or other boat owner went for their working, their families are worried about them so they can track them by using GPS.
- 2) Also, the system will senses the disasters like sea winds, boundary crossing. So this type situation will happens then our device will notify to the control room & also to one family member or boat owner so by using this our society will assure if they get report of their family member.

VI. CONCLUSION

- 1) **Real time tracking:** - GPS pursuit system is that the ability to observe location in real time you can track the movement of your boat on a virtual map once it moves from one purpose to a different.
- 2) **Alert to Fishermen:** - Based on position of the boat, the embedded system sends signal to alarm system. This alarm system works earlier than 1000m from the border, so they will be intimated that they are close to the border.
- 3) **Safety:** - An emergency button will provide in proposed system. This button is used in critical & emergency situations. This emergency signal immediately send signal to the coast guard through satellite. The coast guard can be sent to the exact spot at from where the signal has been generated.
- 4) **Automatic System:** - Another notable advantage with these devices is that they regulate on their own. Eliminating manual operations with a timer switch, the frustrations of manual monitoring water tanks are minimized. Water levels are maintained at the appropriate levels thanks to the automatic operations of these devices.

VII. REFERENCES

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