

Sea-Way Border Alert System Based on Machine Learning and RSSI

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Abstract: In any climatic circumstances and at any time, wherever, Received Signal Strength Indication (RSSI) technology is used to deliver location-based positioning and timing details. This approach concentrates on putting a border identification system in place for all boats. The current system, though, is insufficient to stop crimes against fisherman. The suggested system's transmitter component contains a microcontroller RSSI module, speech playback circuit, and DC motor because it only provides information regarding border identification and not the precise distance that the boat has sailed from the border. The receiver section also incorporates RSSI. For a fishing assistance system, the machine learning method is employed to forecast upcoming precipitation.

Keywords: RSSI, Python deep learning, Rain prediction, Border alert system.

I. INTRODUCTION

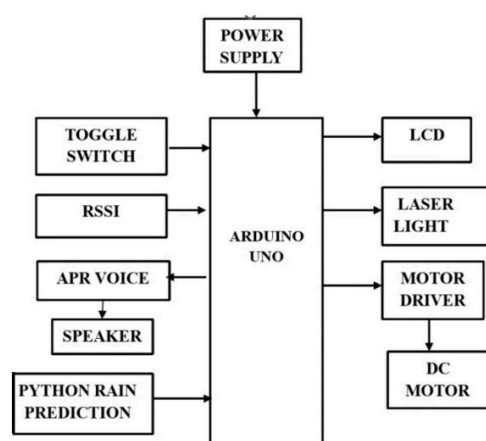
The application can be widely used by people in the border to find the appropriate path to reach the destination. The notification will be sent to the border security forces which act as the server to all other devices that are operated by people in ships. The application will notify the information of where the devices are being located and intimate them about the issues that occur due to opponent forces in ships to server. This can act as an incident management application to avoid conflicts at varying situations. This is processed mainly for Tamil fishermen's who are employed in the borders. The automatic alarming system is going to be provided along with this device which alerts in case any sort of issues. This is devised in such a way that the application can be easily been utilized by all the people in the surroundings. The application operates based on device tracking. This provides ease to operate even for illiterate people.

II. PROBLEM DEFINITION

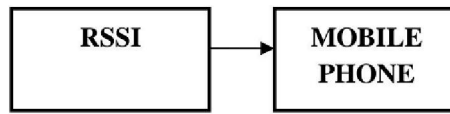
In existing method there was not detected and implemented any safety border alert-controlled boat for fishermen and also the machine rain fall give the extra safety precaution.

III. BLOCK DIAGRAM

RECEIVER SECTION: BOAT



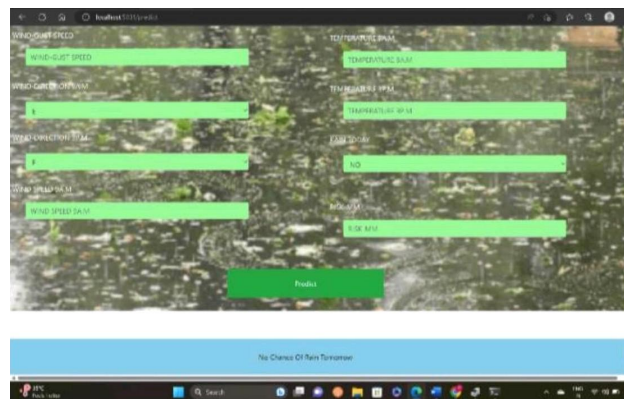
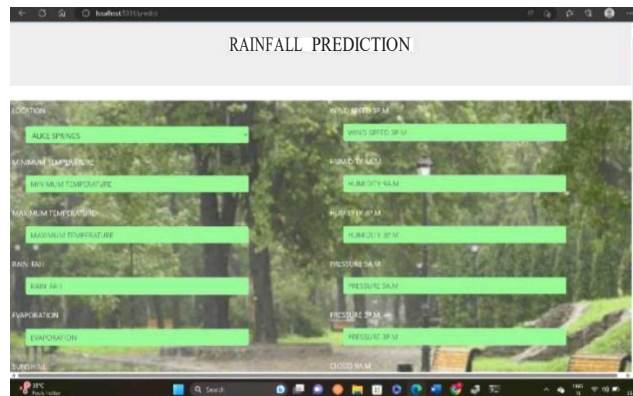
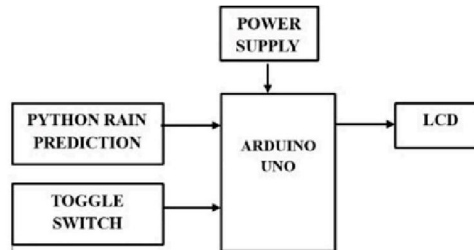
TRANSMITTER SECTION: HARBOR



IV. MODULES NAME

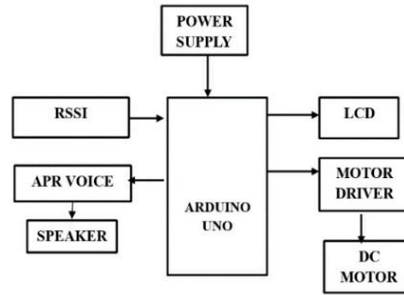
RAIN PREDICTION ALERT & CONTROL

We used to predict the future rainfall to control boat engines by using machine learning algorithms. Whether the fishermen went for the fishing based on that day rain prediction. The LCD is used to update the latest information about the prediction and the border condition.



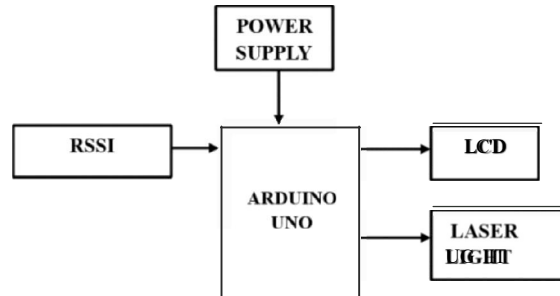
V. RSSI BORDER AUDIO ALERT & ENGINE CONTROL

RSSI technology is used to detect the boat range from the seashore or else lighthouse (from the transmitter). Based on the signal strength the range split into three zone. Whenever the microcontroller get the data from RSSI the system knows which zone the boat will travel. Based on the zone condition the system control the boat engine and give the audio alert for the fishermen regional languages. If the boat in the safe zone there is no alert and speed limit for the boat. If the boat goes to moderate or the danger zone the system automatically reduce the speed and give the voice alert



VI. EMERGENCY FLARE GUN

Whenever the boat enters the danger zone or else is there any problem in the boat the laser will automatically on.



ESP-12E BASED NODEMCU (RSSI)

We use ESP8266 as a microcontroller which was designed by Espressif systems. The ESP8266 itself is a self-contained Wi-Fi networking solution offering as a bridge from existing micro controller to Wi-Fi and is also capable of running self-contained applications. This module comes with a built in USB connector and a rich assortment of pin-outs. With a micro USB cable, you can connect Node MCU devkit to your laptop and flash it without any trouble, just like Arduino. It is also immediately breadboard friendly



ESP-12E BASED NODEMCU

ESP-12E Wi-Fi module is developed by Ai-thinker Team. core processor ESP8266 in smaller sizes of the module encapsulates Ten silica L106 integrates industry leading ultra-low power 32-bit MCU micro, with the 16-bit short mode, Clock speed support 80 MHz, 160 MHz, supports the RTOS, integrated Wi-Fi MAC/BB/RF/PA/LNA, on-board

antenna. The module supports standard IEEE802.11 b/g/n agreement, complete TCP/IP protocol stack. Users can use the add modules to an existing device networking, or building a separate network controller. ESP8266 is high integration wireless SOCs, designed for space and power constrained mobile platform designers. It provides unsurpassed ability to embed Wi-Fi capabilities within other systems, or to function as a standalone application, with the lowest cost, and minimal space requirement.

VII. RESULT AND DISCUSSION

The whole system allows the user's mobility to be tracked using a mobile phone which is equipped with an internal GPS system. A mobile application has been developed and deployed on an android phone whose responsibility is to track the GPS location and send it to the remote location. As a unique identifier we have used mobile's International Mobile Equipment Identity (IMEI) number which will be sent along with the latitude and longitude coordinates. The person's position is further saved in Mobile Object Database (MOD) for live tracking which is created in MySQL. From MOD the data will be first transferred into an XML file which will be fed as an input to a web application which is developed with PHP and JSON server-based Google Map API integrated into which will be responsible for showing the current location of the mobile phone.

VIII. CONCLUSION

The android application which we have developed will provide an effective solution and prevent fishermen's from crossing other country border. The application can save the lives of many fishermen. In future this idea can be enhanced vby using smart watches and satellite phones. Area based alarm administrations are fundamental segments for fisherman's, because of awful atmosphere conditions and slacking of innovation in salvage bolster our angler's confronting an actual existence time issue with neighbor nations. On considering the issue we proposed an ease and simple climate alert framework for angler's which is utilized to follow their family members, companions and other fisherman's. This framework helps anglers when they face problems such as unforeseen climate change or crises. Currently, sensors such as stickiness sensors, temperature sensors, wind speed sensors, and rain sensors are used to monitor weather conditions on fishing grounds. This sensor continuously detects the angler's fishing zone and uses a Zigbee module to send information to the server whenever needed. If you have support, it means you have a crisis button. When they press, an alert is sent to their respective primary server, where they are rescued, as well as their GPS location. Additionally, if weather conditions are unacceptable, an alert will be sent and a bell will begin to ring to alert others on board. Under normal weather conditions, information from the pontoon's sensors and its GPS range is constantly updated on the main server and also displayed on the LCD display

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