

Aquatic Detection of Fishing and Monitoring of Boat using RSSI Technology

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Abstract-In recent days, we hear about many fishermen were caught and penalized as they are unaware of crossing their borders because the sea borders between the countries is not easily identifiable. It is mainly due to the unavailability of proper border crossing system. Hence, we have proposed an Embedded system which provides information to fishermen as well as to the ground station using RSSI Technology that finds the boat location, ultrasonic sensors which track fishes and also gives the exact depth where the fishes are available abundantly and MEMS provides alert, if the boat crosses the destined border the boat engine will be turned off.

Keywords

RSSI Technique, Ultrasonic Sensor, MEMS, Visual basic.

Introduction

Even today fishermen are facing many issues, one of the main issue is border crossing and to find the location of the boat. This leads to loss of human life. A system is proposed to protect the fishermen life by

making buzzer sound and a motor controlled device, which is to be mounted in the boat. Here we have designed a system using embedded system which protect the fishermen by notifying the country border and location of the boat to them using RSSI technology which is an transceiver. We can find the current latitude and longitude values and it send to the microcontroller unit. Then the microcontroller unit pinpoint current location by measuring the present latitude and longitude values with the existing values. Then from the result of the comparison this system aware that fishermen they are about to reach the border. The area is divided into four zones. If the boat is in normal area, then the LCD display normal zone, thus they can make it clear that the boat is in normal area. In case it moves further and reaches the warning zone the LCD displays warning zone if the fisherman ignores to see the display means the Buzzer continuous to indicated to the fisherman if the boat moves further MEMS Sensor produces vibration to the boat. Finally, if the boat moves further, the motor automatically turns off. For tracking the fishes we use ultrasonic sensor which is

used to find distance calibration in sea by posting out a sound wave at a specific frequency of above 18Khz in air at fastness of 344 meter per second and the receiver accepts the reflected sound from the object and distance between transmitter and the object can be calculated by the simple calculation .

EXISTING SYSTEM:

In recent years there are only few existing system which help to locate the current position of the boat using GPS technology and view them on electronic map. For the purpose of identifying the boat, the existing system uses GPS72h, equipment used for navigation in sea it provides fastest and most accurate methods for mariner navigate, measures speed and identifies the location. The accurate position information becomes even more critical as the vessel depart from or arrives in the port. For tracking the fishes, they used SONAR, Echo sounder, Camera,etc. Since the cost of the devices are very high, we proposed a system with better functionalities at minimum cost.

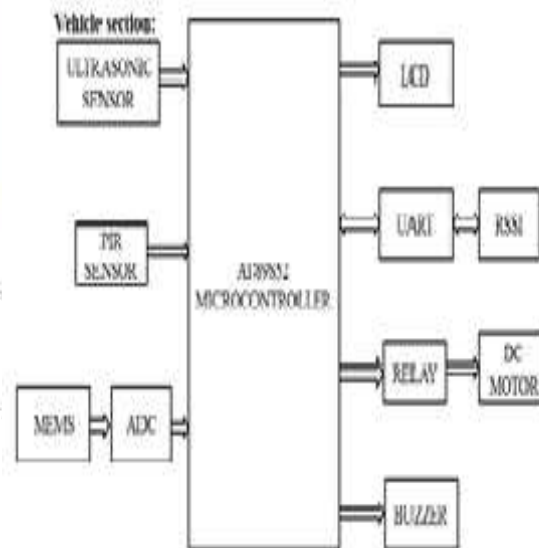
PROPOSED SYSTEM

In an proposed system , we focus on the drawbacks which has been faced in the Existing system. This paper mainly concentrate in area of location tracking, Border alert system and tracking of fish. The RSSI sensor is used to detect the location of the boat in order to specify the latitude and longitude of the current position is

compared with the predefined value. If the compared value is same, then the particular operation takes place.

The border alert system is based on four stages, if the boat crosses the first stage it is the normal zone. When the boat moves further buzzer sound is indicated to the fisherman, if they ignored and continues to move further MEMS Sensor it produces vibration to the boat. Finally , if the boat moves further, the motor automatically turns off. The cost of the devices for tracking the fishes are more, so we are using ultrasonic sensor which are compatible compared to other sensor.

BLOCK DIAGRAM



MICROCONTROLLER:

The AT89S52 is a low power, high performance CMOS 8-bit microcontroller with 8k bytes. Programmable Flashmemory. The device ismanufactured using Atmel's high-density nonvolatile memory technology and is compatible with the industry standardan 8-bit analog-to-digital converter, 8-channel multiplexer and microprocessor compatible control logic.

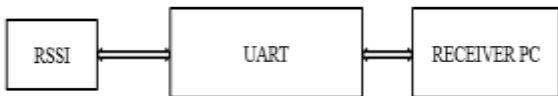


ADC 0808/0809

The ADC0808, ADC0809 data component is a monolithic CMOS device with an 8-bit analog-digital

converter, 8-channel multiplexer and micro processor compatible control logic.

RECEIVER SECTION:



MEM

S (micro electro-mechanical systems)

Micro-electromechanical systems (MEMS) incorporate miniature electro-mechanical components fabricated with processing techniques and equipment originally

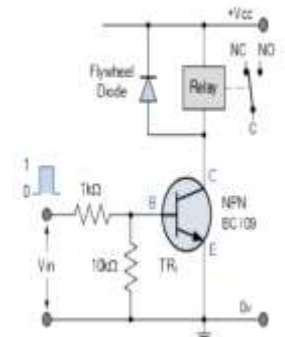
developed in the semiconductor industry. Combining traditional silicon processing techniques, bonding technologies and a number of non-traditional processing techniques, MEMS are being developed for a variety of applications. While existing MEMS sensors and actuators have enabled automotive crash sensors, ink jet printer nozzles and catheter tip pressure sensors, new market opportunities MEMS technology abound in the telecommunication, biomedical, semiconductor, and aerospace industries.

PIR SENSOR

PIR is a pyroelectric sensor module which developed forhuman body detection. A PIR detector combined with a fresnel lens are mounted on a compact size PCB together with an analog IC, SB0061, and limited components to form the module.High level output of variable width is provided

RSSI

RSSI is a specification for a suite of high level communication protocols using small, low-power digital radios based on the IEEE 802.15.4-2003 standard. RSSI operates in the industrial, scientific and medical (ISM) radio bands; 868 MHz in Europe, 915 MHz in the USA and Australia.



RELAY

A **relay** is an electrically operated switch. Many relays use an electromagnet to operate a switching mechanism mechanically, but other operating principles are also used. Relays are used where it is necessary to control a circuit by a low-power signal or where several circuits must be controlled by one signal. The first relays were used in long distance telegraph circuits, repeating the signal coming in from one circuit and re-transmitting it to another. Relays were used extensively in telephone exchanges and early computers to perform logical operations. A type of relay that can handle the high power required to directly control an electric motor is called a contactor. Solidstate relays control power circuits with nonmoving parts, instead using a semiconductor device to perform switching.

ULTRASONIC SENSOR

An ultrasonic flowmeter (non-intrusive Doppler flow meters) is a volumetric flow meter which requires particulates or bubbles in the flow. Ultrasonic flowmeters are ideal for wastewater applications or any dirty liquid which is conductive or water based.

LCD

Liquid Crystal Display (LCD) consists of rod-shaped tiny molecules sandwiched

between a flat piece of glass and an opaque substrate. These rod-shaped molecules in between the plates align into two different physical positions based on the electric charge applied to them.

UART

An UART, universal asynchronous receiver / transmitter is responsible for performing the main task in serial communications with computers. The device changes incoming parallel information to serial data which can be sent on a communication line. A second UART can be used to receive the information. The UART performs all the tasks, timing, parity checking, etc. needed for the communication. The only extra devices attached are line driver chips capable of transforming the TTL level signals to line voltages and vice versa.

DC MOTOR

A direct-current motor is a shunt-wound motor in which the field windings and the armature may be connected in parallel across a constant-voltage supply.

Every DC motor has six basic parts -- axle, rotor, armature, stator, commutator, field magnet(s), and brushes. In most common DC motors, the external magnetic field is produced by high-strength permanent magnets. The stator is the stationary part of the motor

,this includes the motor casing, as well as two or more permanent magnet pole pieces. The rotor (together with the axle and attached commutator) rotate with respect to the stator. The rotor consists of windings (generally on a core), the windings being electrically connected to the commutator.

CONCLUSION:

Thus the project Aquatic detection of fishing and monitoring of boat by using RSSI technology had been implemented successfully the future scope of the project includes that the fisherman can easily identify the location of boat and border alert using RSSI technology and it provides increase accuracy and high precision value of latitude and longitude and they can easily identify sea border .So the fisherman can prevent themselves from the neighborhood militants .The idea is proposed to save life of the fisherman whose life is unsecured in sea.

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