BOAT LOCALIZATION AND WARNING SYSTEM FOR BORDER IDENTIFICATION

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Abstract *- The technology proliferation of Received Signal Strength Indication(RSSI) is used to provide location based positioning and time details in all climatic conditions and even anywhere any time. This method focuses on implementing border identification system for all boats. However, the existing system is not powerful enough to prevent the crime against fishermen as it gives only the information about the border identification but not about the exact distance that the boat has travelled from the border The proposed system's transmitter section includes PIC microcontroller RSSI ZigBee module, voice playback circuit and DC motor and the receiver section includes RSSI ZigBee, PC as monitoring database in the control room of port. And we can send message to the fishermen's home and control through GSM module.*

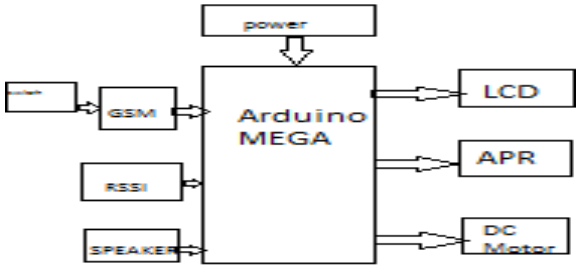
1.INTRODUCTION

Fishing is one of the chief sources of food and income for almost all coastal lands irrespective of its geological location in the earth. Since it has an important role to play in the economy of a country, there is no doubt that neighboring countries sharing the same oceans frequently engage in disputes in regards to ownership of the area. This has resulted in deep problems to the fishermen community residing in the coastal regions of these countries. Often, we hear in the news and see in the papers, one article or the other describing the issues faced by these fishermen in their day to day commute to the oceans. In order to solve this issue, the governments of these countries decided to have a common territory of ocean as international waters and that it would act as the region common as well as a separation between the two lands. But even this did not prevent the fishermen from unknowingly wandering off into the other country's waters. Hence, there is a strong need to device methods to prevent this from happening and save the fishermen from severe punishments and border disputes. Our model helps to ensure the location of the fishing boats through a new technology using radio waves.

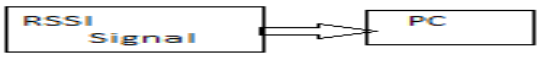
EXISTING SYSTEM AND PROPOSED SYSTEM

In the existing system, there is GPS device to monitor the localization. We need to review the camera continuously until the patient is tracked. In the proposed system, RSSI Zigbee is used to track the boat location at any time. The RSSI Zigbee technology helps in reading the boat and tells the localization of the BOAT.In the proposed system, the boat distance can be measured using the received signal strength received from the slave RSSI Zigbee (boat). By using this RSSI we can find the location of the boat in the sea. Whenever the boat reaches the border the APR voice alert the concern person in the boat and at the same time boat will automatically turn OFF. GSM is used to send the message from the controller. LCD is used to print the current status from the controller.

BLOCK DIAGRAM



TRANSMITTER:



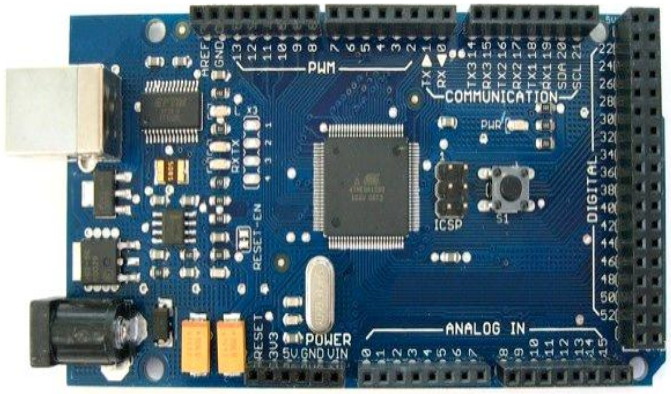
RECEIVER:

MODULE EXPLANATION:

HARDWARE REQUIREMENTS

ARDUINO MEGA

The Mega 2560 is a microcontroller board based on the ATmega2560. It has 54 digital input/output pins (of which 15 can be used as PWM outputs), 16 analog inputs, 4 UARTs (hardware serial ports), a 16 MHz crystal oscillator, a USB connection, a power jack, an ICSP header, and a reset button. It contains everything needed to support the microcontroller; simply connect it to a computer with a USB cable or power it with a AC-to-DC adapter or battery to get started. The Mega 2560 board is compatible with most shields designed for the Uno and the former boards Duemilanove or Diecimila.

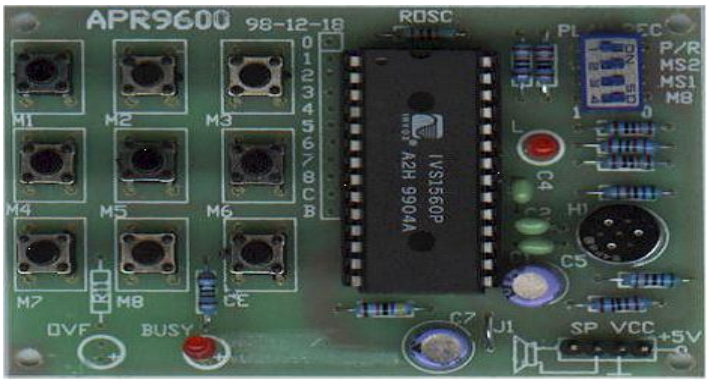


GSM MODEM

A GSM modem is a wireless modem that works with a GSM wireless network. A wireless modem behaves like a dial-up modem. The main difference between them is that a dial-up modem sends and receives data through a fixed telephone line while a wireless modem sends and receives data through radio waves. For serial interface GSM modem requires the signal based on RS 232 levels. The T1_OUT and R1_IN pin of MAX 232 is connected to the TX and RX pin of GSM modem.

APR VOICE

APR33a3 Voice play back provides high quality recording and playback with 11 minutes audio at 8 KHz sampling rate with 16 bit resolution. The APR33A series are powerful audio processor along with high performance audio analog-to-digital converters(ADCs) and digital-to-analog converters (DACs).



DC MOTOR

This DC or direct current motor works on the principal, when a current carrying conductor is placed in a magnetic field, it experiences a torque and has a tendency to move. This is known as motoring action. If the direction of current in the wire is reversed, the direction of rotation also reverses.

LCD

The LCD standard requires 3 control lines and 8 I/O lines for the data bus. 8 data pins D7:D0 Bidirectional data/command pins. Alphanumeric characters are sent in ASCII format.

RS: Register Select RS=0

RS = 0 -> Command Register is selected

RS = 1 -> Data Register is selected

R/W: Read or Write

0 -> Write, 1 -> Read

E: Enable (Latch data)

The 8 data lines are connected to PORT 1 of 8051 microcontroller. The three control lines (RS, RW and EN) are connected to PORT 3.5,3.6 and 3.7 respectively.

SOFTWARE REQUIREMENTS

EMBEDDED C

Embedded C is a set of language extensions for the C Programming language. Standards committee to address commonality issues that exist between C extensions for different embedded systems. Historically, embedded C programming requires nonstandard extensions to the C language in order to support exotic features such as fixed-point arithmetic, multiple distinct memory banks, and basic I/O operations.

ARDUINO IDE

The Arduino/Genuino Uno can be programmed with the Arduino Software (IDE). The ATmega328 on the Arduino/Genuino Uno comes preprogrammed with a bootloader that allows you to upload new code to it without the use of an external hardware programmer. It communicates using the original STK500 protocol (reference, C header files).

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