

IV. RELATED WORK

1. BORDER ALERT AND SMART TRACKING SYSTEM WITH ALARM USING DGPS AND GSM[1]

From this paper we refer

The paper deals with a system of tracking the location of the boat using DGPS and to trigger an alarm which consists of a Piezo-buzzer, when the border is approached or cross. The proposed architectural design consists of DGPS device which is interfaced to the 8051 Microcontroller which in turn is connected to the alarm circuit. The DGPS information tracked in the control room is sent to family members through a GSM system and the information is immediately sent to the border security and the necessary action is taken.

2. Safety System For Fishing Boats To Prevent From International Border Crossing[2]

From this paper we refer

A Geo fencing concept has been used in this system to identify the Indian sea border. Nowadays many fisherman and people traveling in sea are punished by other country due to crossing border. Here embedded system is programmed to analyze the signal whether it is for emergency or crossing border. If it is emergency signal it displays emergency condition in a display. If it is a crossing border signal it activates the alarm to produce alarm sound to indicate the people.

3. Border Alert System for Boats Using Zigbee [3]

From this paper we refer

This circuit consists of a microcontroller unit; it may be of any one of these AT89C52, Atmega 8, Atmega 328 controllers. Whenever the boat crosses the border, the intimation will be provided by the indication module of LCD, LED and buzzer. If the limit exceeds means the warning will be sending and if no response means, the system control unit will makes the boat control to the server side module. The display unit is of a sixteen cross two LCD (Liquid Crystal Display) module.

4. Design of GPS Navigator That Identifies Maritime Boundary [4]

From this paper we refer

The system includes microcontroller the current positions are compared with already stored latitude and longitude of country's boundary locations, if it get matched the microcontroller give instruction to the alarm to buzzer. It also uses a message transmitter to send message to the base station which monitors the boats in the sea. The system provides an indication to both fisherman and to coastal guard. Thus the system saves the lives of the fisherman and alert base station to provide help.

V. PROPOSED SYSTEM ARCHITECTURE

Explanation-

The primary contributions of this paper are as follows:

- Microcontroller:

We are using atmega16 as microcontroller, which is heart of project.

- Buzzer

A buzzer or beeper is an audio signalling device, which may be mechanical, electromechanical, or

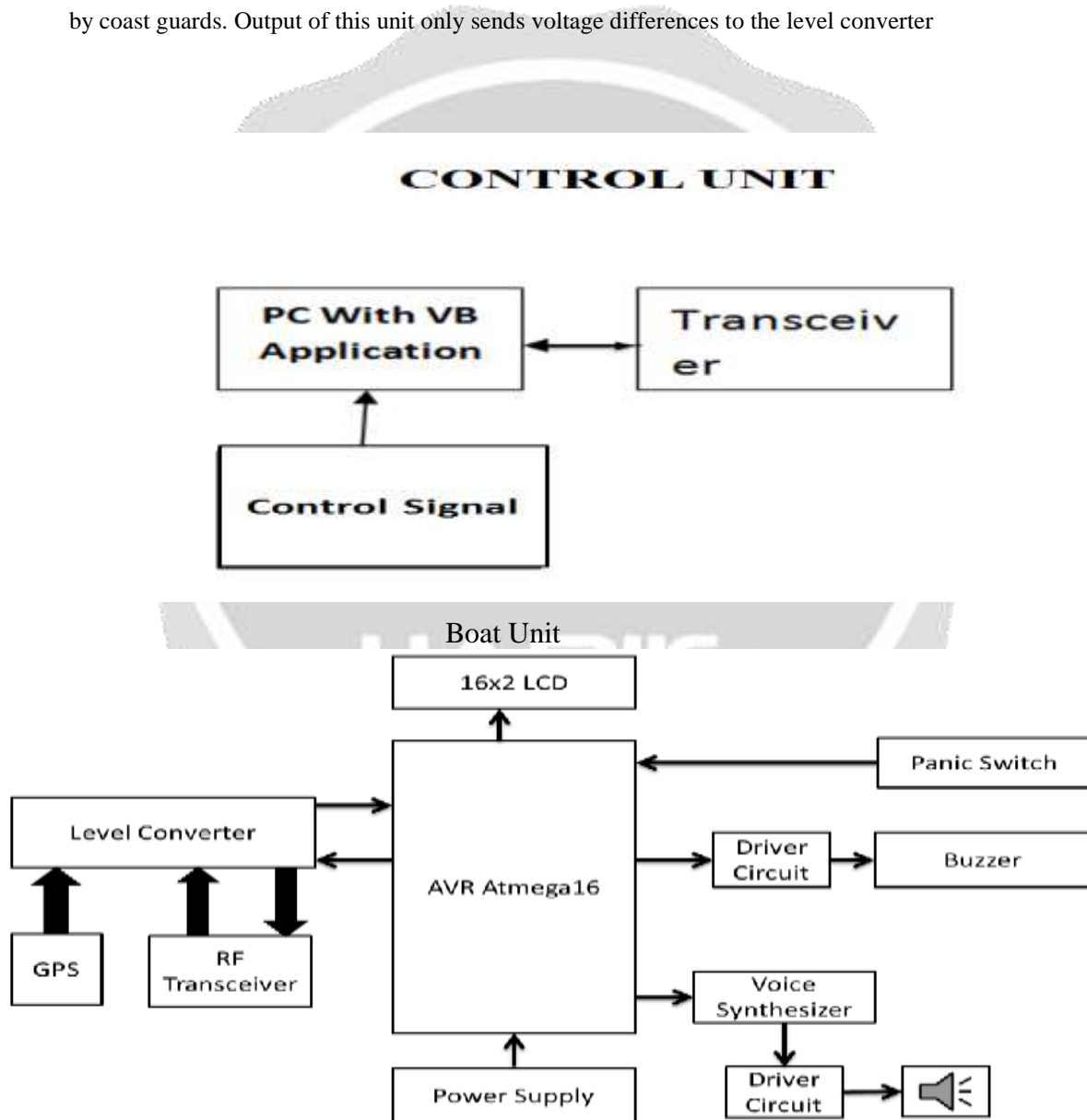
Piezoelectric. Typical uses of buzzers and beepers include alarm devices, timers and confirmation of user input such as a mouse click or keystroke.

- Display

4-bit data interface for compatibility with other Xilinx boards LCD_E, LCD_RS, LCD_RW line x 16 Character

- GPS system

It shows the location of the boat to fisherman through LCD Display. To track the exact position of the boat by coast guards. Output of this unit only sends voltage differences to the level converter



Working

Embedded system

The embedded system is programmed to activate the driver and also display the latitude and Longitude value details through LCD and send to mobile phone.

5.1 GPS system

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5.2 Level converter

The signal from the embedded system is given to the Level converter. Level converter is used to change logic of signals. The embedded system accepts only the TTL logic. Level converter is used to convert the TTL logic to the RS232 logic signal. Level converter sends the data to the RF modem.

5.3 Alert to fisherman

Based on the location of the boat, the embedded system sends signal to Alarm. This alarm system works before 1000m from the border, so they will be intimated that they are nearby the border.

5.4 First level alert system:

The GPS receiver receives the location of the boat from satellite.

a) **Signal Conversion:**

Level converter converts the GPS signal as voltage input to the embedded system

b) **Signal Comparison:**

Embedded system compares the received signal with defined signal which is defined by program.

c) **Signal Transmission:**

When the received signal equal to the defined signal, the embedded system sends signal to the level converter. Then the level converter sends the signal to the alarm to intimate.

5.5 Tracking

In addition to intimation, the tracking system also been attached in this system. This system is used to track the boat if it is missed due to any external causes. GSM Modem sent the signal to the server through satellite. When the boat reaches the maximum position or level, embedded system generates the signal to the level converter. This signal sent to the GSM modem.

5.6 Emergency signal:

An emergency button is provided in this system. This button will be used in critical and emergency situations. This emergency signal immediately send signal to the Coast guard through satellite. Government officials can be sent to the exact spot at from where the signal has generated.

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