DTMF based human less boat control for ocean research applications

The main aim of this project is to control the boat by using DTMF technology, as it is a wireless, it can be easily mobilized and also controlled.

In this project we use micro controller, which is programmed to control the input and output modules interfaced to it. The controller makes use drivers; depending upon the indications the DC motors can be rotated. With the help of mobile keypads operations will be done. Also a mobile phone which will operate the boat directions and speed based on the DTMF technology. DTMF (Dual Tone Multiple Frequency) depends upon the keypad tones where as each tone can generate certain frequency depending on that, the boat will operate and it will increase or decrease the speed.

This project utilizes two DC Motors respectively. The DC motor generates torque directly from DC power supplied to the motor by using internal commutation, stationary permanent magnets, and rotating electrical magnets. Advantages of a brushed DC motor include low initial cost, high reliability, and simple control of motor speed. Disadvantages are high maintenance and low life-span for high intensity uses. The driver used for DC Motors is L293D.

This Microcontroller is capable of communicating with input and output modules. The micro controller interfaced with DTMF decoder is used to control the direction of the boat. LED indicator which it can indicates the motor ON/OFF in case of directions. The mobile phone acts as remote control.

The main objectives of this project are:

1. Design of real time boat.
2. Wireless control of boat directions and movement.

The learning's provided by the project are:

1. DTMF decoder.
2. Interfacing DTMF decoder with controller.
3. DC motor working and need for motor driver.
4. Embedded C programming.
5. PCB design concepts.
6. Wireless communication.

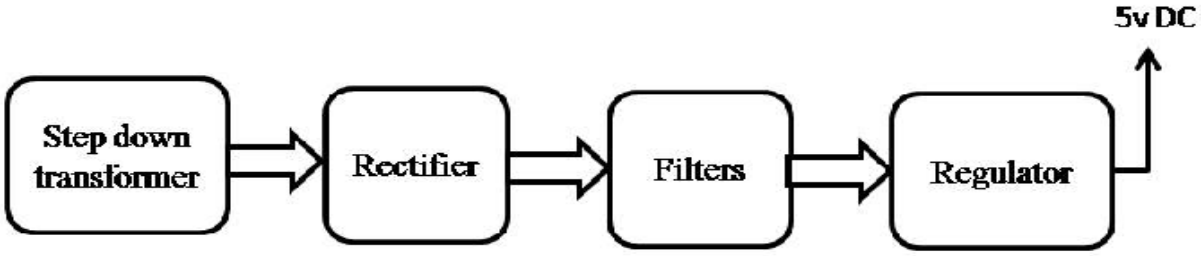
The major building blocks of this project are:

1. Regulated Power Supply.
2. Microcontroller.
3. DTMF decoder.
4. DC Motors with drivers.
5. Crystal oscillator.
6. Reset.
7. LED Indicators.

Software's used:

1. PIC-C compiler for Embedded C programming.
2. PIC kit 2 programmer for dumping code into Micro controller.
3. Express SCH for Circuit design.
4. Proteus for hardware simulation.

Regulated Power Supply:



Block diagram:

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