

Zigbee controlled Boat with wireless video and voice transmission with night vision capability

The project aims in designing a system which is capable of controlling the boat directions and also the camera direction present in the boat intellectually using a wireless Zigbee remote. The video images thus recorded can be seen live on TV. It is a very low cost survey line system used to monitor a larger area using number of cameras. The entire area can be completely automated such the direction of the cameras can be controlled by a unique wireless remote. Since the frequency we are using is of radio band so that it can be also controlled from a very larger distances.

Zigbee is a PAN technology based on the IEEE 802.15.4 standard. Unlike Bluetooth or wireless USB devices, Zigbee devices have the ability to form a mesh network between nodes. Meshing is a type of daisy chaining from one device to another. This technique allows the short range of an individual node to be expanded and multiplied, covering a much larger area.

The most innovative thing in the project is the usage of a high power LED that is again automated. Here the purpose of LED is to serve as a light source for the camera whenever it is operated in low intensity, the wording here means that the LED should again be controlled by controller such that it takes an input from a light sensor and glows the LED intellectually if it feels the light available in the surroundings is not sufficient enough to catch the images.

The controlling device of the whole system is a Microcontroller. Whenever the user presses a button in the Zigbee remote control, the data related to that button is sent through Zigbee module in remote control. This data will be received by the Zigbee module in the boat and feeds this to Microcontroller which judges the relevant task to the information received and acts accordingly. The live images and voice from the camera in the boat can be sent to TV through AV system. The TV provides the viewing of live images and voice. This system also has night vision capability. The Microcontrollers used

in the project are programmed using Embedded C language. This project finds most useful for ocean research applications.

The objectives of the project include:

1. Forms the surveillance system for combing areas.
2. Monitors large spaces in oceans.
3. Wireless controlling of boat.
4. Live Audio and video can be seen on TV.

The project focuses on the following advancements:

1. Zigbee technology.
2. Interfacing Zigbee modules to Microcontroller
3. DC motor working and need for motor driver.
4. Embedded C programming.
5. PCB designing.

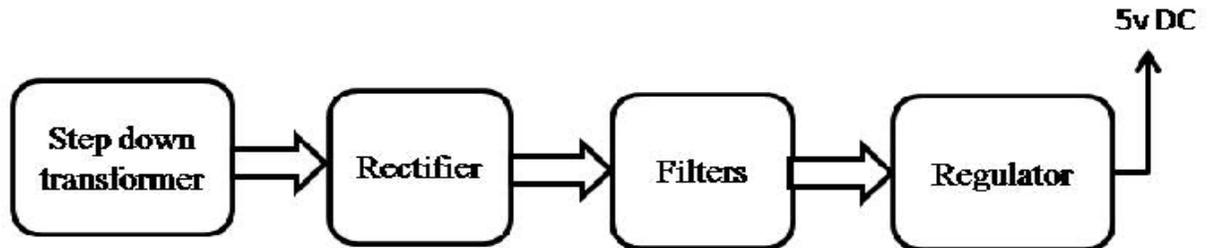
The major building blocks of this project are:

1. Regulated Power Supply
2. Micro Controller.
3. Zigbee modules.
4. DC Motor with driver.
5. Crystal oscillator.
6. LDR.
7. LED indicators.
8. High Power LED with driver.

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.

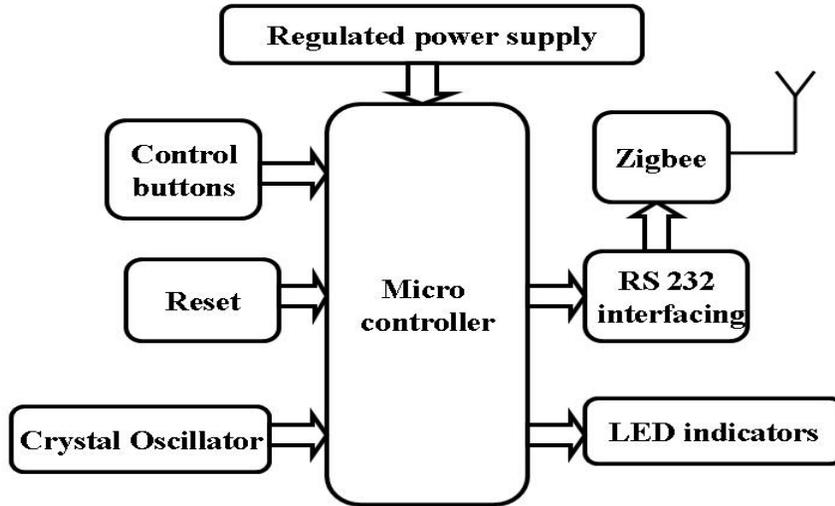
Regulated Power Supply:



Block diagram:

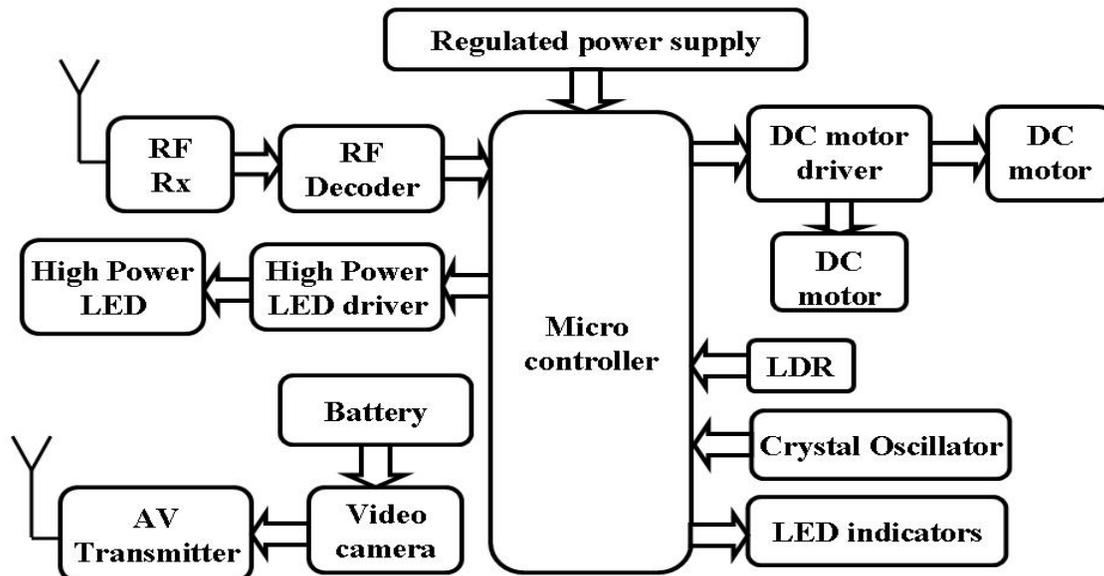
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1. Transmitter



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2. Receiver



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3. AV Receiver

