

# Design And Implementation of Border Alert System In Military Field

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**Abstract-** Highly sophisticated electronic sensors attached to the tank's hull will project images of the surrounding environment back onto the outside of the vehicle enabling it to merge into the landscape and evade attack . The electronic camouflage will enable the vehicle to blend into the surrounding countryside in much the same way that a squid uses ink to help as a disguise . Unlike conventional forms of camouflage, the images on the hull would change in concert with the changing environment always insuring that the vehicle remains disguised.

**Keywords-** sensors; electronic camouflage; Environment..

## I. INTRODUCTION

We design a tanker that will be change the color pattern depends on the environment . Every process will be handled and controlled by microcontroller (PIC series).Field instruments such as ultrasonic sensor used to find object movement and range . Depends on the feedback of ultrasonic sensor , the servo motor will turn the launching tube towards the target .Metal sensor used to find the landmine . Selection switch will design the mode to be operated.



## II. EXISTING SYSTEM

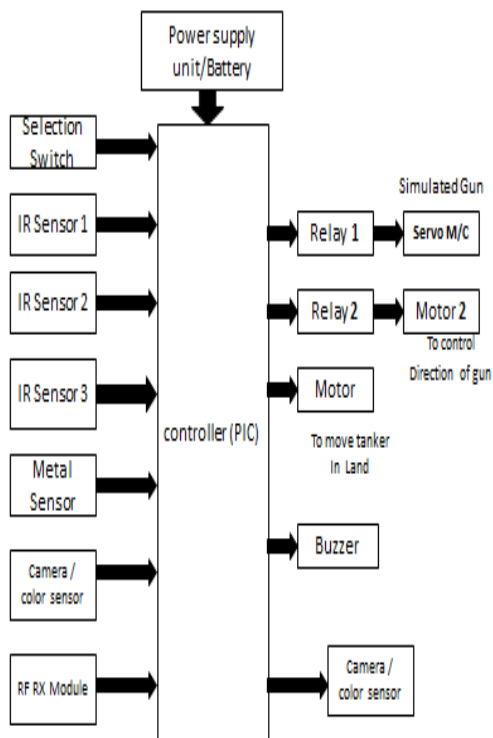
The existing system uses EEG based monitoring in military field. It is visible and difficult to find out the problems. There may be a chance of accidents due to manual control .Possibility of misbehaving.



## III. BLOCK DIAGRAM

### a) POWER SUPPLY UNIT:

A **power supply** is an electronic device that supplies electric energy to an electrical load. The primary function of a power supply is to convert one form of electrical energy to another and, as a result, power supplies are sometimes referred to as electric power converters. Some power supplies are discrete, stand-alone devices, whereas others are built into larger devices along with their loads. The regulated power supply accepts unregulated inputs from 9V to 15V AC or DC and gives regulated output of 5V and 3.3V suitable for microcontroller projects which needs precise voltage to work. The input can come from power transformer or wall mount DC adapter. Since board has diode bridge input polarity does not matter .



b) PIC MICROCONTROLLER:

**PIC** is a family of modified Harvard architecture microcontrollers. Every PIC microcontroller has a set of registers that also function as RAM. Special purpose control registers for on-chip hardware resources are also mapped into the data space. PIC devices are popular with both industrial developers and hobbyists due to their low cost, wide availability, large user base, availability of low cost or free development tools, serial programming, and re-programmable Flash-memory capability.



c) IR SENSOR:

An infrared sensor is an electronic device that emits and/or detects infrared radiation in order to sense some aspect of its surroundings. Infrared sensors can measure the heat of

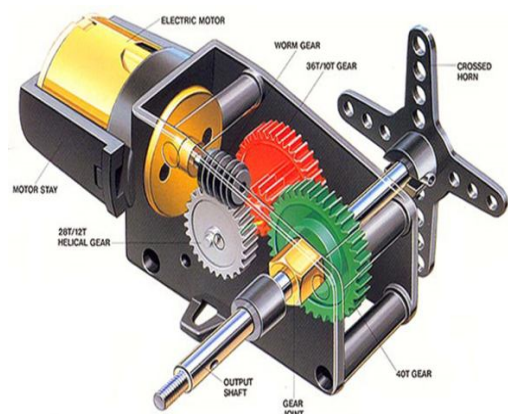
an object, as well as detect motion. Infrared waves are invisible to human eyes. The wavelength region of  $0.75\mu\text{m}$  to  $3\mu\text{m}$  is called near infrared, the region from  $3\mu\text{m}$  to  $6\mu\text{m}$  is called mid infrared and the region higher than  $6\mu\text{m}$  is called far infrared.



d) SERVO MOTOR:

A **servomotor** is a rotary actuator or linear actuator that allows for precise control of angular or linear position, velocity and acceleration. **Servo motor** is a special type of motor which is automatically operated up to certain limit for a given command with help of error-sensing feedback to correct the performance.

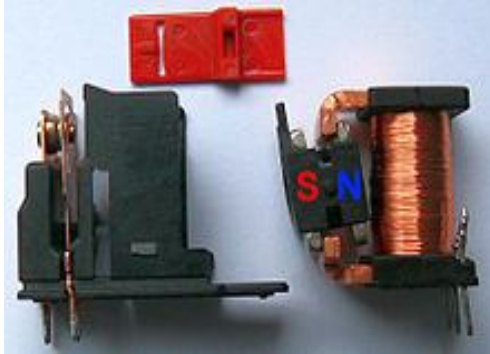
Servomotors are not a specific class of motor although the term servomotor is often used to refer to a motor suitable for use in a closed-loop control system. A servomotor is a rotary actuator that allows for precise control of angular position. It consists of a motor coupled to a sensor for position feedback. It also requires a servo drive to complete the system. The drive uses the feedback sensor to precisely control the rotary position of the motor.



e) RELAY:

A relay is an electrically operated switch. Relays are electromechanical devices that use an electromagnet to operate a pair of movable contacts from an open position to a closed

position. The advantage of relays is that it takes a relatively small amount of power to operate the relay coil, but the relay itself can be used to control motors, heaters, lamps or AC circuits which themselves can draw a lot more electrical power.



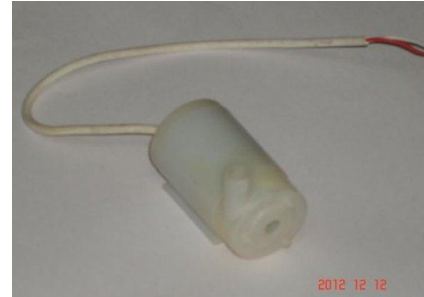
f) METAL SENSOR:

A **proximity sensor** is a sensor able to detect the presence of nearby objects without any physical contact. A proximity sensor often emits an electromagnetic field or a beam of electromagnetic radiation (infrared, for instance), and looks for changes in the field or return signal. The object being sensed is often referred to as the proximity sensor's target. Different proximity sensor targets demand different sensors.



g) PUMPING MOTOR:

An electric motor is an electrical machine that converts electrical energy into mechanical energy. This is a mini submersible type water pump that works on 6V DC. This motor is small, compact and light. It can be controlled from a micro controller using our DC Motor Drivers or one of our Relay Boards. You may use our 5V SMPS Power Supply Adapter to run this pump.



h) GEAR MOTOR:

A **gear motor** is a specific type of electrical motor that is designed to produce high torque while maintaining a low horsepower, or low speed, motor output. Gear motors are commonly used in devices such as can openers, garage door openers, washing machine time control knobs and even electric alarm clocks. Gear motors are primarily used to reduce speed in a series of gears, which in turn creates more torque .



**IV. HARDWARE AND SOFTWARE**

a) HARDWARE:

1. Power supply unit
2. PIC microcontroller
3. IR Sensor
4. Servo Motor
5. Relay
6. Metal Sensor
7. Buzzer

b) SOFTWARE:

MPLAB is a free integrated development environment for the development of embedded applications on PIC and dsPIC microcontrollers, and is developed by Microchip Technology. An additional package, Simulink, adds graphical multi-domain simulation and model-based design for dynamic and embedded systems.

**V. FUTURE ENHANCEMENT**

The following are the future scope of our system. Our proposed system can be further improved and developed for following uses:

The uses of devices can be further improved and the cost of the system can be further reduced. By the improvement of technology, the system can also be made useful for the various application fields. This system can be improved and designed in order to decrease the human loss in war field. This system can be further improved in design to detect chemical explosives.

## VI. CONCLUSION

Sophisticated tanker system have many advantages over the traditional way of targeting in military tanker. Some of these advantages are lesser cost, fast tabulation of results, improved accessibility, greater accuracy, and lower risk of human and mechanical errors. We tried our level best to introduce a new tanker system that will be invisible, accurate, transparent, fast and will ensure a safe military system.

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