

## Advanced Border Security

Bidwe Pallavi Balasaheb<sup>1</sup>, Prof.Bansode Rahul Sitaram<sup>2</sup>

<sup>1</sup>(Student,Department of E&TC, Sharadchandra Pawar College of Engg. India(MS))

<sup>2</sup>(Asst.Professor, Department of E&TC, Sharadchandra Pawar College of Engg. India(MS))

---

**Abstract:** Now-a-days there's a shocking boom within the activities of terrorist & forces of neighboring nations on the borders between the worldwide places. because of the increase in those activities patrolling the soldiers will increase & from time to time squaddies misplaced their lives in those encounters. Our device is a simple solution for this trouble in which or device will do the patrolling paintings & detects the intrusion & remove that intrusion.

**Keywords:** Microcontroller, Ultrasonic Detection Sensor,Smoke Sensor, PIR Motion Sensor, Laser gun,Audio Simulator.

---

### I. Introduction

Now-a-days there may be a surprising increase in the activities of terrorist & forces of neighboring nations at the borders among the countries. due to the growth in these activities patrolling the squaddies will increase & every so often soldiers lost their lives in these encounters. Our device is a simple answer for this trouble in which or device will do the patrolling paintings & detects the intrusion & remove that intrusion. This gadget is completely automatic which wishes handiest one or folks for preservation purpose. This challenge will basically give attention to the human interfacing & know-how towards our mission device i.e. the detection & alerting the squaddies to take essential motion to the problems at the border. This system has ultrasonic sensors that are liable for the detection of intrusion. As they may be mounted over the segment pillars. The sensors constantly rotate within the range of certain levels (a hundred and eighty) & display the intrusion over the radar with its area. any other set of sensors which experience the intrusion & show over the LCDs & activation of the alarm. because the sensors detect the intrusion vibration sensor & gasoline sensor sends signal to the receiver or manipulate room again locate the intrusion with the aid of sensor hooked up over it. because it detects, the laser gun this rotating gun additionally include digital camera which provides live surveillance at manipulate room while the command of hearth is obtained from command room it'll fireplace closer to the intruder & remove it. The ultrasonic sensors we use are HC-SR04. The controlling modules are LPC2148 board. The laser used is Diode Laser.

### II. Existing Methods

As a pupil ,we are located many issues like:

- 1) most of the device obstacle is detected the use of PIR Sensor, but short variety of PIR sensor of one of the most important downside of the device.
- 2) WSN has the capability of detecting the obstacle as human or animal at border itself by using analyzing the sound of footsteps produced via human. . This paper indicates the device has several nodes which can be interconnected with each other and eventually they're linked to the main node. The concept of using node increases its common range , however this mission also suffers a primary drawback that if impediment do now not input with footsteps then it may fail to locate additionally this venture cost is very excessive due to the range of nodes linked with each different.

### III. Project definition

The purpose of our proposed device is a easy answer for above mention problem wherein or machine will do patrolling paintings & detects the intrusions & get rid of that intrusions.This system is absolutely automated which desires best one or two people for maintenance cause

#### IV. Block Diagram



Fig 1: Block Diagram

#### V. Hardware Description

##### 1) LPC 2148

LPC2148 microcontrollers are based totally on a 32-bit ARM7TDMI-S CPU with real time emulation and embedded trace guide that integrate microcontroller with embedded high-pace flash reminiscence 512 kB. A 128-bit wide memory interface and an specific accelerator architecture permit 32-bit code execution at the maximum clock rate. In-gadget Programming/In-utility Programming (ISP/IAP) thru on-chip boot loader software. 10-bit ADCs offer a complete of 6/14 analog inputs, with conversion instances as low as 2.44  $\mu$ s in line with channel. single 10-bit DAC offers variable analog output 32-bit timers/external occasion counters (with four seize and four evaluate channels each), PWM unit (six outputs) and watchdog. Low electricity actual-Time Clock (RTC) with independent strength and 32 kHz clock input. multiple serial interfaces along with two UARTs, two speedy I2C-bus (400 Kbit/s), SPI and SSP with buffering and variable statistics duration competencies. Vectored Interrupt Controller (VIC) with configurable priorities and vector addresses. as much as 5 V tolerant speedy popular cause I/O pins in a tiny LQFP64 package deal.

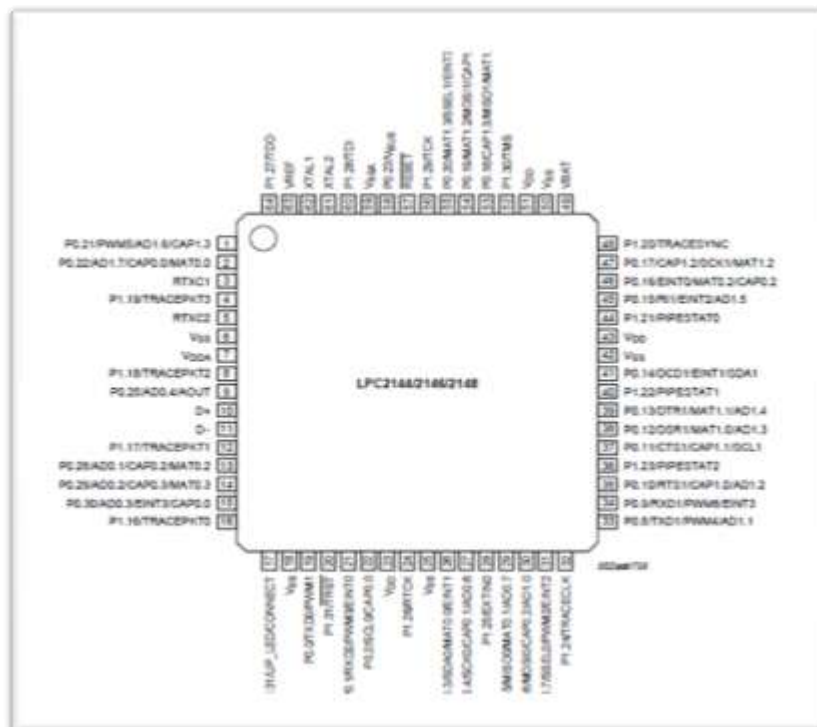


Fig 2: LPC 2148 Pin Diagram

## 2) Ultrasonic sensor

The HC-SR04 Ultrasonic Module has four pins, GND, VCC, Trig and Echo. The ground and the VCC pins of the module need to be linked to the ground and the 5 volts pins on the microcontroller respectively and the trig and echo pins to any digital I/O pin on the microcontroller. So one can generate the ultrasound you need to set the Trig on a pulse width of 10  $\mu$ s. with a view to ship out an 8 cycle sonic burst if you want to measure the distance and it will likely be acquired inside the Echo pin.



Fig 3: Ultrasonic sensor

## 3) Smoke sensor

A smoke detector is a device that senses smoke, normally as an indicator of fire. Commercial protection gadgets typically send a signal to a fire alarm control panel as a part of a fire alarm system, whilst family smoke detectors, also referred to as smoke alarms, generally issue a local audible or visible alarm from the detector itself. Smoke detectors are housed in plastic enclosures, normally fashioned like a disk about a hundred and fifty millimetres (6 in) in diameter and 25 millimetres (1 in) thick, however shape and size vary.



Fig 4: Smoke Sensor

## 4) PIR Sensor

A PIR sensor detects adjustments in the quantity of infrared radiation impinging upon it, which varies relying on the temperature and floor traits of the gadgets in the front of the sensor. When an item, along with a human, passes in front of the background, inclusive of a wall, the temperature at that point in the sensor's discipline of view will increase from room temperature to the object's temperature, and then lower back again.



Fig 5: PIR sensor

## VI. Software Requirements

1] **KEIL**- It compiles the programs written for controllers and generate hex file for loading into microcontroller.



Fig 6: Keil Software

2] **Flash Magic** - It burns files from given path into flash memory of microcontroller.



Fig 7: Flash Magic software

## VII. Advantages

One of the beautiful element about Border safety system is it can be tailored to infantrymen life-style regarding with state. Here are 4 of the most powerful blessings Border security gadget will offer for squaddies:

- 1) It prevents foremost wars from happening.
- 2) Enhance more border security
- 3) It places negotiation first.
- 4) It will increase the energy of a country in addition to its fame.

## VIII. Application

- 1) Army and Aerospace embedded software programs
- 2) Verbal exchange packages
- 3) Commercial automation and technique manage software program
- 4) Mastering the complexity of programs.
- 5) Discount of product design time.
- 6) Real time processing of ever growing quantities of statistics.
- 7) Intelligent, independent sensors.

## IX. Conclusion

We have fabricated a sturdy and transportable protection device for the use borders. We consider that our gadget is very simplified and feature the capabilities that different border security structures does now not have at portability degree. Our system may be improved by means of doing the improvements in step with the needs. The accuracy & precision of the machine may be advanced by the use of a couple of sensors & it'll provide suitable & accurate effects with high precision.

## References

- [1]. Goodin, D., Hackers pierce network with jerry-rigged mouse: venture not possible meets Logitech. posted in agency security, 27 June 2011. available at: [http://www.theregister.co.uk/2011/06/27/mission\\_impossible\\_mouse\\_attack/](http://www.theregister.co.uk/2011/06/27/mission_impossible_mouse_attack/). Ultimate considered 5 July 2011.
- [2]. Border safety system Nitin Srivastava<sup>1</sup> Corresponding writer: Neeraj Gupta<sup>2</sup> Co- author: Bittu Verma<sup>1</sup>, Prashant Tiwari<sup>1</sup>, Lakshay Verma<sup>1</sup>, Manjeet Kaur<sup>2</sup> <sup>1</sup>: UG college students..
- [3]. Cuppens F and A Mieke (2002). Alert correlation in a cooperative intrusion detection framework. In lawsuits of the 2002 IEEE Symposium on security and privacy.
- [4]. Fink GA, CS Oehmen, JN Haack, advert McKinnon, EW Fulp, and MB Crouse, "Bio- stimulated company protection," Self-Adaptive and Self-Organizing systems (SASO), 2011
- [5]. Golovanov, S. and Soumenkov, TDL4 top Bot I. [http://www.securelist.com/en/evaluation/204792180/TDL4\\_Top\\_Bot](http://www.securelist.com/en/evaluation/204792180/TDL4_Top_Bot). ultimate considered: 5 July 2011. Bruce J, GA Fink, "shopping for threat: E-commerce strategies implemented to collaboration in cyber protection," in complaints of VisualCol 2012 workshop.
- [6]. Carvalho, M. 2009. A allotted reinforcement mastering technique to challenge survivability in tactical MANETs. In lawsuits of the 5th Annual Workshop on Cyber safety and statistics Intelligence studies: Cyber security and data Intelligence demanding situations and techniques (CSIIRW '09), Frederick Sheldon, Greg Peterson, Axel Krings, Robert Abercrombie, and Ali Mili (Eds.). ACM, big apple, the big apple, america.
- [7]. Crenshaw, A., Programmable concealed USB Keystroke Dongle: the usage of the Teensy as a pen Testing Device.
- [8]. Crouse M, GA Fink, JL White, EW Fulp, KS Berenhaut, and JN Haack. 2011. "the use of Swarming agents for Scalable safety in big network Environments." Invited paper in lawsuits of the 54th IEEE global Midwest Symposium on Circuits and structures.