

# Zedd Glove

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**Abstract** – The world around is changing very fast, with the massive growth of technology we see a lot of things developing at a rapid rate. There are many positive and negative aspects of advancement in technology, In some cases technology is the main reason behind wars around the world and researchers have also predicted the chances cold war in future but on the other hand under many cases modern technology is the main reason various wars could now be put to an end. This project is an approach to help the military to develop a device that gives them the ability to manipulate electronic devices around them using Arduino Based EMP Glove and the Stroboscopic Effect. Project ZEDD Glove is a wearable glove that is based on Arduino Nano Microcontroller, EMP architecture and Stroboscopic Effect. The device makes use of stroboscopic effect hence giving the perfect way to channelize the EMP Field to its target. The power signals are constantly monitored and the data collected by the ZEDD Glove system is transferred to a set of Machine Learning Data Analysis Models which simultaneously generate the risk factor levels to control the damage amount. The vitals of the device can also be monitored remotely by the action of data transmission through a secured cloud network based on encryption. The system communicates with the analysts discussing about the risks of having certain levels of EMP signals in the current environment, when any risk factors are detected the prediction algorithms determine the danger level and the output signal is cut. The data logged from the entity are matched with previous data logs helps to determine the perfect levels of EMP that can be used to achieve the goals under various conditions. The ZEDD Glove can give the chance to jam the electronic devices under will up to a certain range. Thus giving an effective solution to minimize the rates of casualties caused due to electronic devices in a war zone.

**Index Terms** – Arduino, Microcontrollers, Machine Learning, EMP Device.

## 1. INTRODUCTION

Due to the increase in usage of technologies to win wars In our country, there is a huge need to come up with solutions to minimize the risk rates. This research has led to many new fields in technology which focuses to developing solutions for this cause. But still we are lagging behind due to many factors in the field of Research and Development. The Primary goal is to establish a faster link to bridge the gap and come with new devices one of which is based on the usage of EMP Generator and Stroboscopes. The overall function of ZEDD Glove device is based upon the channeling of EMP pules of certain frequency to help manipulate the electronic device present under a certain range. It consists of a Glove, LED 100W, Optics, Arduino NANO, Accelerometer, Potentiometers, MOSFET, Lithium

battery and EMP Generator This device can simply prove to be useful during the cases of emergency situations when electrical Devices starts to malfunction and can cause serious damages to the human life. It can also be used by RAW agents and other security personnel's to JAM various technology based weapons operated by enemies in the battlefield giving them an advantage to minimize the causality risks. ZED Glove is based upon Arduino microcontroller , It is just a stroboscope oriented device with frequency adjustment. Shake your hand in Z direction of accelerometer which is embedded in the device (fast move your hand forward), LED will be turned on. Shake your hand again to turn the device off. Use potentiometer for coarse tuning, and glove tilt for accurate tuning. When frequency of object coincides with frequency of LED, it will "stop". And you can adjust "time" for it, tilting your hand, so object will slowly move at normal direction, or reverse. You can watch video about how it works and "freeze" some fast-moving objects. So the major purpose of ZED-Glove is to make our military more advanced and let people stop common disasters caused by Electronic devices.

Scope of ZEDD Glove is not just limited to military but it can also be extended beyond that.

ZEDD Glove is a wonderful example of the applications of Embedded Systems, Machine Learning and IOT. Each data set of ZEDD GLOVE is trained under tensor flow models to provide the best experience results.

Future versions of ZEDD Gloves would be able to track the interference levels of EMP on the surrounding devices.

## FEATURES OF ZEDD GLOVE

- EMP Generation
- Targeted range
- Safe to use
- Monitored usage

## 2. RELATED WORKS

With the introduction of the high efficient Embedded devices and presence of EMP inn today's world we are around the most advanced and hi-tech microprocessor and microcontroller technology, which has the control over education, finance, transport, Electricity, Communications, etc. An EMP (Electro-Magnetic Pulse) has the tendency to destruct any electronic

device in its targeted path range, causing electronic equipment to fry its circuit. With the development and dependency on such modern-day equipment's, we can state that every device is based on electronics. This makes the EMP one of the most dangerous weapon in the world which can cause havoc on any sectors. There is even subsequent research going on to develop devices to prevent the action of EMP's, various EMP shields are being developed. The EMP shields can only prevent a small amount of Electro-Magnetic Pulse. However, a perfect shield against an EMP attack of very high intensity is still not devised, although Ferro-Magnetic cages provides a protective shield against an EMP strike which is a very difficult and the success rate is even too low which makes it ineffective in front of ZEDD Glove.

### 3. SYSTEM DESCRIPTION

#### A. Arduino Connections

The Arduino board has been used for ZEDD Glove, Arduino. Being the open source microcontroller-based kits for building digital device and interactive objects that can sense and control physical device. During the time of execution, the values will have stored in the EEPROM, so that it can transmit its data to the various device connected to it. The power source is USB

1) Typefaces and Capacity: There are many different typefaces and a large variety of port in the Arduino board which are been used to connect with the different types of the hardware to it. Each hardware is being connected via Breadboard with the help of connectors. The different ports are likely Ground, Receiver and Transmitter etc. Now, every device even has different ports to it. Now the challenge remains to connect it with the Arduino board.

2) Format: Now, every port in the different hardware like Wifi Transmitter, Breadboard, Relay switch, and other sensors is to be connected with the board. The format followed for the connection are like connecting Arduino 5v to RAW pin. Arduino ground to Relay/Sensors ground. Pin labelled X-Acc to A0, Y-Acc to A1, and Z-Acc to A2 Similarly WiFi transceiver ports are also been connected to the board accordingly with every cross matching. Because the transmitter port are never been connected to the transmitter port of the board, its cross matched so that transmitted data can be stored by the boards memory and can be shared to the other devices connected to it.

3) Display: The code below will create a web server in the ESP 8266 WiFi transmitter to allow the python based User Interface to control the device.

### 4. SYSTEM IMPLEMENTATION

#### A. Support

To execute the overall project the need of many supporting background to it is required. These are been provided and then

the execution starts. In project ZEDD Glove tough acrylic board has been used to support both the Arduino board and bread board. Now the connection are been given to the Arduino from the breadboard using connecting cables. Now, challenges for transmitting the data are been completed using WiFi added to it. The WiFi shield is been given to support the overall system.

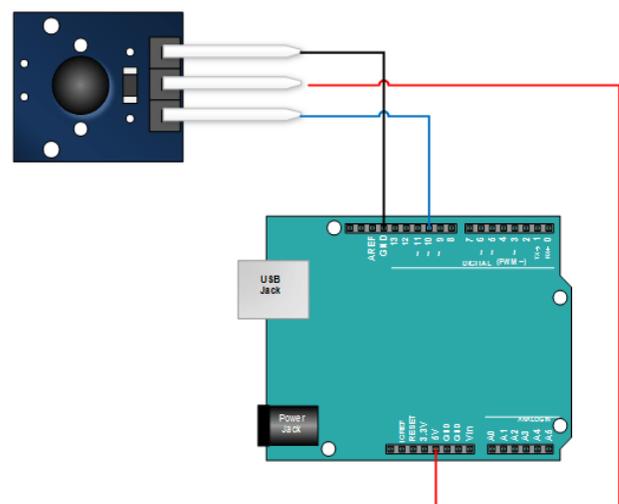
#### B. Working

The projects are to be provided with the power system so the microcontroller board can control its functional units attached to it. The board is given by the battery of nearly 3000 mAh so that it can last for a minimum of the 76 Hours. The board are been receiving the data and stores it in their flash memory and then, as it is been paired with another microcontroller device it shares all its data to that and where that device becomes host to other devices. It creates a record of the shock of the car during an accident.

#### C. Codes

##### ESP 8266 Web Server

Now once the connectivity issues are been completed, the execution of connection made are been started. The codes are been written in the IDE software of Arduino board. In the Analog Readserial it's been written. The main functional codes starts with the "void setup()".



FigII: Connection of Wifi transceiver to the Arduino board Using Gauge wires.

#### D. Abbreviations

Mc : Microcontroller

EEPROM: Electrically Erasable Programmable read-only Memory

mAh :Milliamps Hours

E. Solutions to problems

- Targeted EMP
- Stroboscopic Effect for accuracy
- Effective during was and spy operations

C. Limitation to the Existing Systems

The current EMP devices are handheld devices which don't have a controlled range. In ZEDD Glove we use a microcontroller to achieve this.

5. EXPERIMENTAL RESULTS AND EVALUATION

A. Experimental Data

1) Case 1: Using EMP on a Cell Phone



Fig I: Phone Test.

2) Case 2: Using EMP on a calculator. The experimental results of case 2 are shown in Fig II.



Fig II: Calculator Test

3) Case 3: Using EMP on a multimeter. The experimental results of case 3 are shown in Fig III.



Fig III: Multimeter Detection

Data Analysis Testing

1) Case 1: HIGH Pulse EMP Test

Very High Electromagnetic pulses when released.

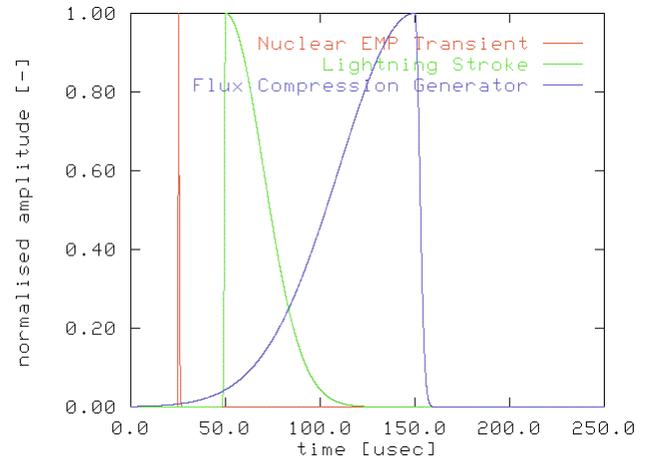


Fig IV: High Pulse EMP based on Nuclear Transient

Case 2: Slow Electric Dipole EMP

The tests done under slow electric dipole EMP

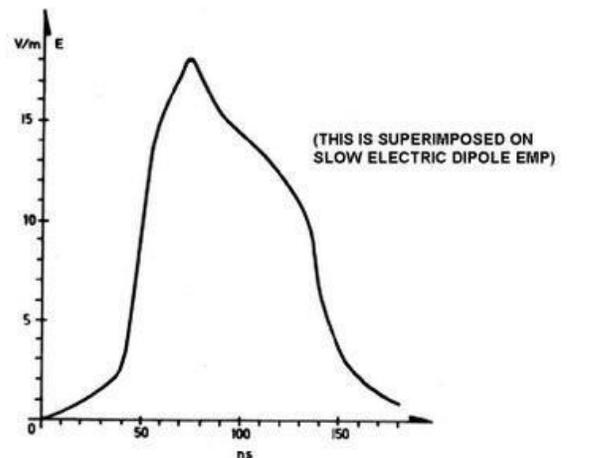


Fig V: Slow Electric Dipole EMP

## 6. CONCLUSION

At first, the research experience took me in several directions until getting acquainted with the variety of methods that can be employed within the current Electromagnetic Pulse Technology. As explained throughout this report, EMP, Stroboscopic Phenomenon, Machine Learning was the preferred tool to dive into, as it provides the right abstraction from the details and presents a uniform result to the user. As a Computer Engineering major, I found myself deeply interested in swimming across this abstraction layer – where the requirements of this project meets. There is more to be done to

achieve a more polished functionality in ZEDD Glove and I feel that leaving this report at hands of the faculty can assure that this goal is reached at some point by the joined efforts.

With GLOVE we can aid out military by the use of modern technologies such as EMP and Machine Learning.

## REFERENCES

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