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Evolution of Smart Radar System in Indian Regiment: Perspective, Strategies and Future Goals

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Abstract: In recent times the concept of smart or Digital Security has gained great popularity. Thanks to the evolution of the Internet of things the idea of Smart/Digital Security now seems to be achievable. Consistent efforts are being made in the field of IoT in order to maximize productivity and reliability. Now, we are going to introduce an IoT base security mechanism applied in the Border Forces of India. In our mechanism, we used a radar thermal sensor. Our Mechanism can detect metallic arms and send a signal through a specific IP address to the base station. We fixed it on the top of the National flag We can also take action by this mechanism from the Base Station. It can blow out 3 types of gas which are- 1) Heavy fog 2) Poison gas 3) Sleeping gas, we can control the flow of all the three gases. We can also monitor the percentage of all gases. Our mechanism will be invisible because it is placed under through ground. We can monitor the exact situation because it is connected through an IP address it does not require any WIFI or BLUETOOTH connectivity. If we want to connect the device by WIFI, we have an option for that. No one can easily control it because of its highly secured IP address. The paper also describes a high-level view of the system architecture. Towards the end, the paper discusses the working of the system in form of a use case that proves the correctness of the proposed model.

Keywords **- IoT, Mechanism, Gas, System,**

I. INTRODUCTION

At first, we introducing radar. RADAR is an electromagnet system which is used for sensing, detecting and locating the objects present in the ambience. RADAR stands for Radio Detection and Ranging. For the first time, in the year 1940 US Navy coined the term RADAR. This system operated by transmitting an electromagnetic wave and detecting the reflected signal [1,2]. Earlier, the RADAR was mainly developed for detecting the existence of a target for measuring its range, so addressed as RADAR But We are here to update the radar the radar that's why we need to full-body security scanners. At the beginning of 2010, with the aim of improving aviation security controls, some airports started to use full-body security scanners, also known as body scanners or security scanners. Body scanners make a full body screening producing detailed images of the screened person's body in order to detect both metallic and non-metallic objects that might be concealed under the clothes. Deployment of such scanners may entail an invasion of people's privacy since they produce a detailed display of the passenger's body with no clothing, revealing an atomical details and private parts, including medical prostheses. In this article we updating the radar system by mixed up those 2 systems [3,4]. As a Result, our updated radar was given us a Thermal sensing spectrum 360-degree monitoring. We have an advantages in our radar we can attack or tack action by it because we implement some gas pump. We can also control the pump form the base Station. It can blow out 3 types of gas 1st is heavy fog 2nd one is poison gas 3rd one is sleeping gas. The first one mines the heavy fog will helps to blocks the vison of the terrorist. In the second stage we have an option to blow out the poison gas to stop the Enemy. The poison will decrease the Enemy but if we need to keep the Enemy alive then we can use our last option which is sleeping gas [5,6]. we can control the flow of all the three gases. We can also monitor the percentage of the all gases. Our action mechanism will be invisible because it is placed under through ground and our radar implements in the top of Indian flag.

II. DESCRIPTION OF THE STRUCTURE

A. Selection Place

The template is used to format your paper and style the text. Here we organized a high-tech security Replica which can modify our Indian regiment. IoT is one of the greatest Creations Of engineers, as an engineer here can use IoT to help and simplify the life style of Indian soldiers. We all know that India has may type of radar system but we are coming forward to improve the systematic stricter of the radar. Our radar has an advantage to locate the unwanted people those who came through the border. Our monitoring system is differing from others because we have a Thermal vision view in our display monitor. Here we have an advantage of our radar because our radar is placed upon of our national flag and no one can easily find it. In our mechanism part at first, we can see the radar and in the second part the pumps. We need to attach Nickel chrome wire Stainless steel Fog Machine Heater to blow out fog or smoke. The heater stipulation maximum 25 watt /cm2densities. The pumps help us to tack action by blow out some gas, all of the pumps DIMENTIONS- 5*5*5cm. The net weight of the pump is 100 GRAMS. The particulars of our Pump are 18 watt and 110v to 120v DC and 220-240 V AC power.

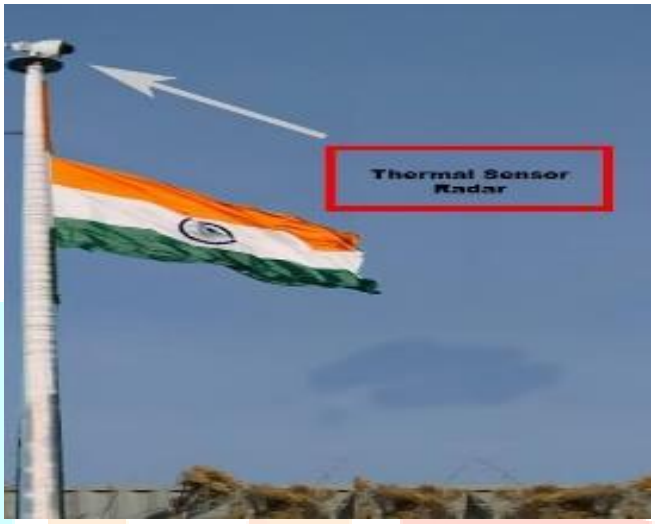

Fig.: Actual Structure

B. Calculation method

During this stage of the article, we should be serious and emphasize the importance of it. We see that we have made up many parts together if we elaborate our replica. The structure of our replica can actually be crimped in a real field by flowing it. We need to know the correct position of the components in order to increment it. This is why the calculation is so important. We need to start our calculation by calculating the exact angle and the rotation speed of the motor. The radar's speed depends on the motor's speed. we can control the motor speed by calculate the frequency/wavelength of the wave and the Pulse Repetition Time. A generator's thermal ray wave length is about 10 nanometers. The pump that produces gas requires ac power of 220v. Therefore, we need some power cables that are no thicker than 4mm. 18*18 Prisma display was field in our base. It is not more than 28*26 if it increases the Thermal mechanism got heat. No specific calculations have been done to date, but if the location has a high wind pass, then we should increase our motor zine. We use a small pump, but if we need a bigger pump, we can order it.

III. ENSURE THE CIRCUIT

Circuit is one of the important parts of a project. That's why we need to check the circuit very carefully. Hear our circuit is very easy to understand. To make connectivity we need a thermal sensor, a 360º servo motor, SM-06GHF IP Module, 3 width mouth pumps, and 4 pump to blow out smoke and some auto changeover switch. At the first stage we need to channeled the gas line and fixed the heating element position. After that we need to fixed the fuel tank at the end of the gas line (your base camp). Then we need to connect the esp83 module with the SM-06GHF IP module to circulate the IP in over range to our Base. Then we need to combined the thermal sensor with 360º servo and connect it with the IP module. And out pin of transmitter of Ip module was fixed with an antenna. After that we need to fixed your dis play and connect the p4-p9 with connecting wire. That's how your basic circuit infostructure was done. In below figure we will show how we connect it.

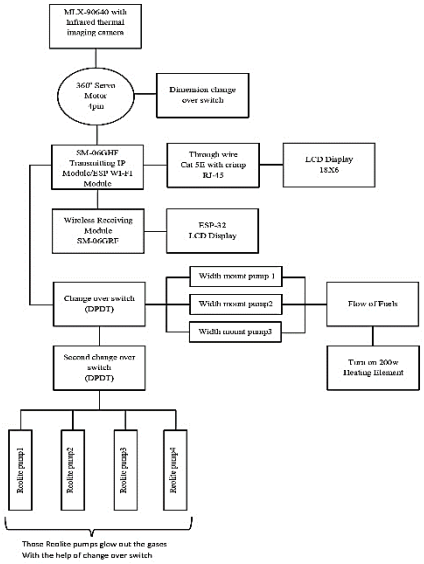

Chart 1: Block Diagram of the circuit

A. Finalized the Position of Radar

We could not have made this replica without using this component. If we had chosen to use any other component instead, we would not have been able to make our idea a reality because it's the simplest components that we used here. we want a specific place to position this component can detect enemy. It will locate those strangers who have crossed our border, that's why we fixed our radar from the middle of the bordar area to its both ends, so that we can cover our entire area. The position of the radar is most important think than others. We planned to hide it in a place such that the enemy cannot see it, to made it's hidden that's why we've chose our national flag. We implement our radar in the top end of our national flag. Because no one can imagine that a radar was placed in the top of a national flag. Finally, the radar stereo display will show its views based on its IP address at the basecamp, which will be seen by the Indian soldiers.

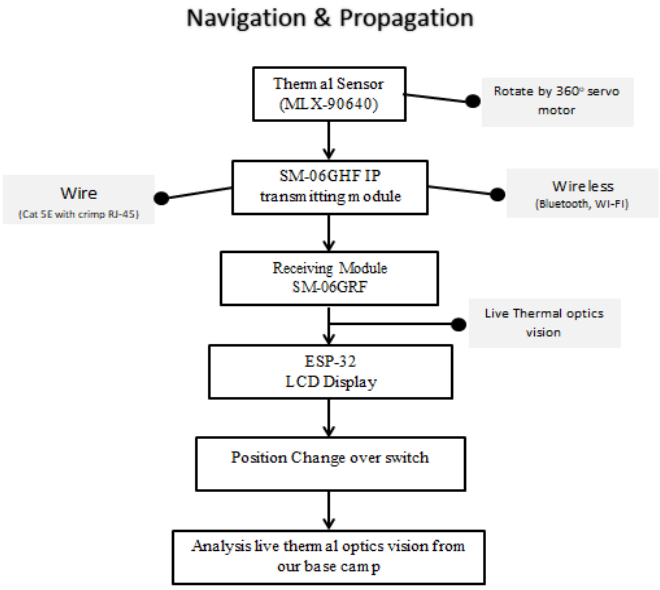

Chart 2: Block Diagram of Navigation & Propagations

B. Finalized the Position of Pump

The pump can be used for the various purposes in Our daily lives and from there we have taken the idea to implement pump in our system. Here the three pumps are used for blow out smoke. We can also blow out any three gases from the provided pump at ones. We will install smoke pumps at our base in such a way that if enemy enters any part of our border area, they will be affected by the gas emitted from the gas pump. And our plan will be succeeded.

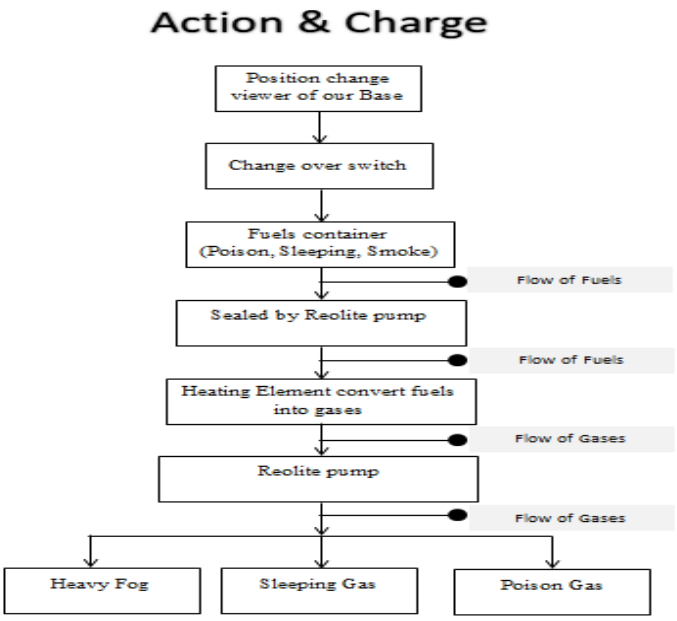

Chart 3: Block Diagram of Action & Charge

C. Description of the Gases

Pump 1st one is heavy fog it will help to block the vision of the Terrorist. 2nd one poison gas, in the second stage we have option to blow out this gas to stop the enemy. And in the last one we used to sleep gas to unconscious all enemy. Here the poison gas is used for finishing enemies but if we need to keep Enemies alive then we can use our last option which is sleeping gas.

IV. THIS HOW IT WORKS

Giving respect to our Indian army, we are invented a updated version of radar system. To describe it We prepared a replica. our replica is based on some important components, and it can also be used in its actual original location. Most dynamic components are radar, fog pump, display. The radar we use here isn't like any other radar because we built it from using the Thermal sensor. [6] The Thermal sensor principal is one of the things that make this radar special. The Thermal technology is used on our radar to detect unwanted people. And it helps our radar to send an image of those terrorists who crossing our border by an IP Transmission control protocol, which we can see on a LED display in our base camp. Now the most important component pumps, when we see the enemies are already entered in our area at that time, we used three types of fuels to make three types of gases & we will heat those fuels with the help of a heating element(200w). We have three fuel tank and it seal by pump to lock or control the flow. When we allow trigger the motor with dept. switch the fuel start flows and the heating element will be wrapped around the pipe, and the heating element started heating the pipe now when the fuels flow form the heated pipe the fuels are converted to gas. those gases we will pumped out form the pipe. We also controlled the flow of all gases, and we can also monitor the percentage of all gases by our mechanism. That's how our mechanism works.

V. CONCLUSION

Here we have we have implemented a cost efficient security mechanism which can help our solder to protect us from the terrorist. and also we can assure that our project more attractive and more high-tech form other one . In this project we try to mainly focus on radar because the radar show us thermal visual which is very useful for our solder. our project in connected with the hart core emanation for our solder . In future we have think more updating in our project . we need to serrulate this mechanism in a small prototype. Our mechanism needs energy to perform. but in future we will arrange its power on renewal energy.

VI. ACKNOWLEDGMENT

We recognize the efforts and hard work put forth by the experts, who have contributed to the development of various navigation systems. We take this opportunity to express our deepest respect and deep gratitude to our guides for their continuous encouragement, monitoring, and exemplary guidance throughout this project. We researched extensively on this topic, which gave us insight into the Radar Navigation System.

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