Introduction

We all know about our Indian Army, taking up the history we saw that many precious gems sacrifice their life to protect our country

And they are camping in such areas where there is no sign of life, no sufficient oxygen level, no clean water, harsh and brutal weather, and the temperature in some areas is below -40 degrees Celsius

My father is also in Indian Army and watch my father’s life closely

So, I found to do something which help Indian army in such conditions, and i came up with a little solution which surely make difference in such deadly areas

Introducing a robotic weapon which is fixed and movable both, and can be operated or controlled from a given limit distance (safe place)

It basically provides a weapon simulator to the user who access the system and enable the user to take down the target from large distances (here range depends upon the gun’s muzzle velocity)

It comprises many features such like a pseudo target position which is corrected from wind and gravity error during long range sniping and supported by thermal vision and night vision moreover it also gives a good quality zoom with high resolutions

This project has a focus to save the army life and provide a better defense system

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1.ABSTRACT:

Terrorist as an intruder is not a new thing, but surely it will dissolve by some factor through H

This system is better than pre-existence ones:

* Safer
* Faster than human
* More convenient
* Immune to weather
* More accurate
* 24x7 tight security

This system is not dangerous because it is totally dependent upon the user commands.

The human security may weak due to conditions like harsh weather, dense forest, lack of long-range sight, at dark night, and many things.

A picture containing snow, outdoor, igloo, day

Description automatically generated

This advance system is cheap and easy to operate.

Limited deployment spaces and high velocity winds in high altitude areas, make the armed forces weak, here wind is responsible for imperfect targets specially for long ranges, and this system contains a special algorithm to remove the wind error.

This system can also inspect highly alert areas with loaded weapons.

Communication system is totally secure and long ranged with considered ms ping(lag). Chart, icon

Description automatically generated

Combination of motors is very smooth for provide better simulation, comprises servo motors and stepper motors both as per use.

Types of prototype

Assaulters snipers

|  |  |  |
| --- | --- | --- |
| This system comprises the AR guns on the machine  Which provides safety in rescue and surgical operations  And they are also helping to oppose cease firing on borders  Because of AR guns this system can target up to 400-550 meters  They also provide security system on gates and in restricted areas  The major advantage is at wars  And they provide a better offense system and save army life at war |  | This system comprises SNIPERs on the machine  Which provides a long-range security and take down  They major need of this system to target the intruders from the long range  It featured by many functions which enables to short very accurately from the long ranges  They also featured by thermal scope which helps to target camouflage enemies such as white suits in glaciers  They have high resolution scopes with nigh vision  Which optically + electronically zoom the target for short |

2.Background:

Here the data shows the recent terrorist activities and spots on this India map

Map

Description automatically generated

Illegal entries in borders are one of the main reasons for terrorist attacks, as we all know patrolling is regular and strict but still, they have time gap of 10 – 20 mins, this time gap is enough for anyone to cross border.

The round off value is around 3000 km of India-Pak border and LOC is around 740 Km where there is no fencing and wall to separate, and same in the case of LAC.

Here we have some past details regarding the terrorist activity.



From this data, this is clear that the terrorist activities are increased from

past and the number of deaths and injuries are decreased, and this is because

we are continuously increase the armed forces and use of artificial

intelligence technology in our defense system.

Pseudo positioning:

This is the new concept I want to introduce in my project

It is an accurate position where the bullet hit practically, and the new position is calculated with error resistances. And for the long ranges the theoretical and practical position differs a lot

Pseudo position is calculated by following:

\*Gravity effect

\*Wind effect

\*Drag forces

\*Ballistic calculations

\*Includes (density of air and temp) error resistance

Gravity effect:

The gravity pulls down the bullet down towards it and on long ranges they even create more than 1 meter error from sight of scope

Wind effect:

The wind effect pushes the bullet in their respective direction and cause a lot of difference from sighted target (and wind can be in any direction so it also effects the muzzle velocity which can change the whole trajectory)

![Letter

Description automatically generated](data:image/jpeg;base64,/9j/4AAQSkZJRgABAQEAYABgAAD/4TXARXhpZgAATU0AKgAAAAgABgALAAIAAAAmAAAIYgESAAMAAAABAAEAAAExAAIAAAAmAAAIiAEyAAIAAAAUAAAIrodpAAQAAAABAAAIwuocAAcAAAgMAAAAVgAAEUYc6gAAAAgAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAFdpbmRvd3MgUGhvdG8gRWRpdG9yIDEwLjAuMTAwMTEuMTYzODQAV2luZG93cyBQaG90byBFZGl0b3IgMTAuMC4xMDAxMS4xNjM4NAAyMDIxOjA5OjIzIDE0OjQ2OjUyAAAGkAMAAgAAABQAABEckAQAAgAAABQAABEwkpEAAgAAAAM1MgAAkpIAAgAAAAM1MgAAoAEAAwAAAAEAAQAA6hwABwAACAwAAAkQAAAAABzqAAAACAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA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\*Drag forces:

These forces are deaccelerating once, and they are depending upon shape, size and mass of the bullet and drag forces are here normally the study of air resistance with respect to the shape size and spinning of bullet

\*Ballistic calculation:

Here comes the real one, means to say all above factors are in ideal cases but here this is advance calculation of trajectory, even the density of air, weather and temperature of environment also included in this calculation

Here an example

[Ballistic Calculator GunData.org](http://gundata.org/ballistic-calculator/)



It will look like this

Here our yellow point is the pseudo position comes after all the calculations for accurate take down.

The distance of the target and auto focus on the target is easy because the device is available in markets which give the accurate distance of the target

A picture containing indoor

Description automatically generated

Here is the real demonstration what looks our project the background empty layer is filled by the live stream by camera and the graphics add on to it

This representation looks, when we want to have shoot zoomed targets but there is a free clear stream without adding anything on it for better observation

We specify the special key to press to show the pseudo position, so it gives a good control and provide a external factor to practice the sniper training on the simulator without wasting the bullets

Empowered with many scope effects:

\*Highly zoomable cameras (optically + electronically)

\*Night vision

\*Thermally sensitive

\*High stability

Yes, Indian army have thermal scops, but they are limited to 3x only because of lack of power carrying heavy batteries on soldiers’ body

And for the long range even in 2021 two soldiers are required to have a thermal manual shot

Here we have a picture



Here in the glaciers white dresses are not noticeable so soldiers need to use thermal scopes but one-man can’t tell the exact location to gunner so there is a lot of human error comes here

 ![A picture containing text, outdoor, fire, device

Description automatically 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ypdP8AH+n3URQFyR96RlZQfpWPo2gvYOWaO2mZ+jPFk1tyXoaMRzLBJGOirEMflQUJr98rSaPK3mRj7ZFJwSP4WrRhvDJb5iYuf9s4rA1O8Ms2lq8sbrHexqVZMjG1uK1ZdQhcYZFYehArhw/8Wt/i/Q+lzT/cMv8A8Ev/AE4yz/a1z/zzqT+1pfQ/nVP+0k9qjbUYf7rV3HzRq2vihpP9YNlWF16eM5S6ic/NztrCWSzNvkqSaqNd28P+qty340AdJD4ohlbEgCv6/wANT2+rQXFx5YaPf64Ga42c2rrh90Y9BxWTcagbd4msIJJmPVmYqaAPTZrxLdiCp3v0Oz5aaupmH7xB+qV5sfEni3UJpVS8trWzP3PPG51+ma1LfX9Ss/8AX30d98n/ADxWgDql8QH7Pn7Oc+uKhHiZIW8x7dGX0JNc2fEWrTDCRWyj0DLUUN7r98ssDrbLCOjZG786A63Ovk1yO58rFo/PXilZp5PvwSJ9MVyF94mudDWBHmmuZyNixRL0PuarW/ifV9SWWM6abGQdJbp/l/KgDtltIx1Pl/76mrPk6d/zzX8jXBX9nd3vlfatblmz/wA8CU/lVb7HF/z93n/fbUmk9wIbjRUXo2Kh/saK2Xy/LErerNk1n3Wuakv+ssyf9w0q3moyNl7VEPrmmBqxrHJ99FT6CpfOTbjcuPTZWHDfXsf+sVX/AN4Zqx/bE27Z9m+T+/mgDWjaJlwz5HoahmVZHLpKyuRgspwaxnuGZtjK0Sf31fBpiyTx/ckD/U0AbwnYMDMrSEdC75qxHfSrwAQK5OOa5k/4+Gi/4AxrXt7hz/Gx/GgDRkvJCclcmnR3Em4neuT1PrVHzG/vH86WEr6CgDR3yYA3JgcAUisWYknJPUmof3X96l3P/eWgCwBI67WdmX+6ScUxZNpBXgjuKZJNJH/q3V6jVpP+eH/j1BJdjk3NljuPqae71UjmFPWYHrzQUTxsFxgYx09qkMhX7p2/SoWkUdABS/aF9B+VAFe/YZ0445N3ESf+A1fhkWX/AFihfwrJ1K4UfYuOl3Hj/vmrK6gW6xg/hXDR/i1v8X6H0mZf7hgf8Ev/AE5M1lhi/vVJNa/9NFrD+3yf3aX7VKeq5ruPmzU8lMY8w49M1Ayxq2BC4f1DfLVRrz3oW5JXBJI9M0AE08kn3oGb6jNU5slhIY3KjoK0Xv2/vt+dVpNSG3GePSgChGPMYs0TMz/dJ5Ipu3/pk3pWl9sAxjt09qj+1D1oALPT2b/V/L/v0kdo4uTgkZ60LfE9WJ/GhrzHIJB9aALFrp8aNulba2c5759adcRiNiUlZyepLGq8txu+8d31qtPdbPu/L9KANaGQcfvV46VL9sf++351z8c6f3R+VP8AtD/32/M0ADRoOjkfjSSWqN1uFP41zqfb1/10m38aqXBuB0l/Wgk6MxW56yk/jT10r7RDuR3df+eUa/1rl1h1D+/HX0r8MPDOh/8ACq7a9v5jDqN9qC2djApy0pPUn/ZoKHfs7fBTw/4+s9btfEVtKZWTNsTJh0+leffGLwZpHg34ganpGlqwtrVlQBcnOF55r6Y8T+Erfwr4Tu73RdTjsbvSrV5pGt5fvFTtwv8AwLivh7WPEU+oaldPNeym6nbzCZGLk/VjU1JRpe9M3w+Hq4up7OhG8vJf5m3HbxDvSi3RekhH41zUesSp9y6jk+qZ/pU6ayV/1twq/wDAP/rVzfWsP/Oj0f7EzP8A58S/D/M6HbD/AHpPzpoktw2AXD+uflrOtfEEMf35A3+9Hn+lF1rVnIMJLGo9FRhT+t0f51+If2Lmf/PiX4f5m4rWno1Is9uV8vyzu9cc1jR6rp0n39SVPojVPD4j07dn7bHn18ts0vreH/nQf2LmP/PmX4f5mkNq9FUfhTkuov7rVQ/4SPTv+e4/79H/AAplv4m0k9btT/2zaj61h/50P+xcx/6B396/zNaO6tIfvRSH61JDJD/zzk/74rIj8Sae3lbtSQ565hb/AAr2m81rwFZW1sYNTa4UQg3HmadcI6sVXBz5fT3o+t0f50L+x8w/58y/D/M0/hX8D9H+KHhOW9XV57XUIrlUdNhCbPb3rz/4h+G9N8KeLtT0fT7ua7itJWjEkyhc/jXs3hn41eCPBGjyyaP4huS7w+YY5dHnwWK8fNjj614Pax3HjjXJrp7kTPdM0u4DLHvnH0rpVWFT4DjxOBxGGt7eDhfua+lfB7xF430nT9T0SzjvbRL6OGba+GHy/exWL4o0QeDNcvNIvXIurWYxyAHcBjrzXvPwT8QL8L9Nitb4Pt1u/Ftp4jDMZJ1BXy8gcH5ercV4d8SpJbjxt4gku3VpJLuTzFX/AHqyjCKnLl6/F93+RWIq16tKjGovdhH3fS/+dzFm+zR/6ubf+NQ+Y/8Aeb86yJtR0yNiPPEJi/1ibWOPx71JLrmmDpqCj/tlJU+2o91+J1RybMJRjOFF+95r/M1tqf3WpNwrOPiCzh+9qKn6h/8A4mq39qWn/QRT8mqPrVD+ZFf2JmX/AD5f3r/M1fMqOZ0/uj8qy21K3/5/o/1/wqD+0IJP9Zfxr+f+FX9aod0H9h5j/wA+X+H+Zvbov7/60kMkJ6tmsBryz/6CMf5n/Cqkd5bf9BNPzap+tYf+dB/YeYf8+X96/wAzr1WGH7xB+tESwN1INczHqFq/3tSRvqSam/tSxHTU4x/2zaj63R/nQf2JmX/Pl/ev8zqPskf95f8Avuqc1on93/x6ucbU9K/6CB/74ej+27J/+Ygsq/KPL2OrZ+vpV/WaX86Ilk2ZQjzzoP8AD/M3khHoPypdo9KjtWDdbqM/jV3z4/79p+ddB5Bxk90t1/y2Y/8AAqzpmX/nq351kx3iDpKR+NEkp9akg0Dc+d9ydx9GNbmn+Nda0tbBrXWJoHsm32yMQRE3qvqfeuMWTb04+lOa5KtuDEH1zVFnql18WtV1Tw6+mTyMQYnjmdmJM2+TefyPNccxiW1+VscY49PSsW2uhNnzDtz1p63yG1MZALL909zSaUty4zlF8ydmbcWqXS2+RcEH1DGpm8QXNx/rZJB9WNcy0mBgcD0q5DqCx2+ZMOf9rmlyx7B7Wt/O/vZ0H/CSTf8AP5J+Zp7a5MOl3IPxNc//AGnF/dX8hVmLVIG6wMf+BUcsewe1q/zv72ax1SdutxIf+BmiPVJ/+fiX/vs1Qs9Utpv9ZGV/CnLOk33VA+go5Y9he0q/zv72Xv7Sk/56t/30auQ6xc/33/76NU1WD/ZpG1C3XowFHLHsHPU/mf3nRaHq+NSszeTlrRnUNtHIr0/xp8dpNa8I3Wm2styb28uzHLgcLZj/AFaD29RXiFvrEC4wrDHPFOtdQZ23KyQt6twaOVdg9pV/nf3n0Rb/ABCmvvhLc6XF4hjk8zSlhktnADowkwQD3+SuJ+ClxH4d8WTasLP7ammWc1z5bn5XwmACO4yRXmTeImhxudTjpntVuz8YTWTSSW1wVWRPLcIxAZf7px1HtTSS2HKUpfE7n1fofxV1Pwj8MdB14iJv7W1gxzNsXbFGSSVX0bGT+Br56+JGLfx94hjYMXa5ZlOzkqTuBrkrzxtqctpZ6S8ivptrepexxMc4kIcEj04JH4mtLX/iBdeJtSa9vRDFeNHsZowBk1lTqKcpQ7HoYjBzw9ChXctKkW/ubX6Ff+1LkKAJnwOg5o/tLPWNjWb/AG+lTza3bhfLC4b13VrZHnqpNLRk7zCa3zINpqm+pS+hqpca1blQC2QnUetQ/wBvWn+zRZdiva1P5mbP9qXX94fnUI1i5b70yn6rWYmvab+9/fNx04qn/wAJJB/dX8qLIz9pPuzp/tj/AN5KrJeyf3axP+Eosv8Anj+lNTxtbbfL8j5/XHNLlj2H7Sf8zOihuJvQ07zZ9xkwdq/dHY1zv/CaqOiKPwqr/wAJ9HtA2vgdBRyx7Fe1qfzM7Br67T7iGT680lxeTSZ37kwMNg9fpXKL42dehYfQ1XPi+SfHmlhjpz0p8q7CdSb0bOt8iwh/1dsG/Kru+z/54J+leenxUV+6MfSn/wDCQN/dpkGDsT+9H+Qpk1wn/PU/nWK09VJLz3NAHQrd+9Me+Fc79vb++351It4D1lU/jQSb63+epz+NW5VKsJQcKOgrmEvRUq6pOy4M2R6bqCjdkvDH9xi/1NMW83DBJI9M1itdSL0dR9KjS8P94/nQBvLfD1qcakB0OK5pr4DocVL9sHrQB0v9sj1P51NB4gZei4rk1uhUq3wt/vHNAHUf8JDJ7/nUS6qD1Oa5r+1B61JDdCgDqB4iYdBiopNYkuu1YLXB9ahOolfusV+hoA6Vrrd947vrQt1sXap2j0HFc9/aB/vH86Wa+I6MR+NAG4b9mmukLsVWNdq54HzDp+Z/OmHWJDb5IyfWsW1uixnJJJMCk5P/AE0SpftQxjt6V52H/wB4rev6H0maf8i3L/8ADU/9OM04dalk/wBZlPxpTektksSfXNZP2oHrzQ90K9E+ZNg3ec55z196i80elZK3nvT1vRQUaLXGM4OM9aZ9oHpWW957/rQ10KANH7R705tSjDbgAD61k/av85qP7UnotAG3DdJcdABToriI9UU/hWOt4sf3fl+nFQi4lHR1FBJ0DFY/uAP9eaY/+kdKzI76RejqKjOpSJ911X6UAbkUaqvlzKA3rineZ/0z/wDHq5q41iVmy0oY+pPNVf7Vm/56j86Cij/aEnpVV9Qf+7WX/a3+0fzpF1IHqc0AWZbqcdMj8ah8qT++351WvL5h0dh+NMh1EnqxP41IGvHdPD952P1NSw3QrFkvgepzUumXitqEKt8yt94HoKANpZiepJ/GlhuT/eP51V162k0C6WORmljmXzI2U9RWX/aBHRiPxoA6ika4PqaxotSJ6ux/Gj+0loA20mPqaSZ2PVifxrITUh60v9qZ6kn8aANf7QvoKcL4DocVz39of7R/Omtqg9aAOnXUgepqH7R/pGM8elYKao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A picture containing text, outdoor

Description automatically generated 

A group of people on a street

Description automatically generated with low confidence

Motor works



here I used a basic two disk design to provide



3d motion to my gun and camera



so, I am using servo motors



here because they are fast



and smooth

this needs delicate movement here as per the

simulator user and this disk system controls the small

movement of camera (even less than 1 degree)

INPUT for motors:

Here we can give the input from any sensitive and errorless device like optical mouse or joysticks so basically inputs are in of 2-dimensional form and the output from the motor is 3 dimensional

If here we introduce 3d inputs, then the simulator become little difficult but 2d input for the motors are better than 3d

X

ny



Y

nx



here n is constant for provided sensitivity of controller

and factor of transformation linear to circular

let the input voltage changed to move motor to our specific position or any other way with different controller

a



b R



e



c e f c b a



f

so the length of that straight bar is (PIE\*R) so if the sensitivity depends upon R.

as the sensitivity of controller is also there and we get final sensitivity on machine by mix up with them is “n”

MOTOR CONTROLS AND BOARDS:

Here we are doing positional delicate control, so it needs a loop given below

Motor driver

MOTOR

CLOSED loop

Processing board

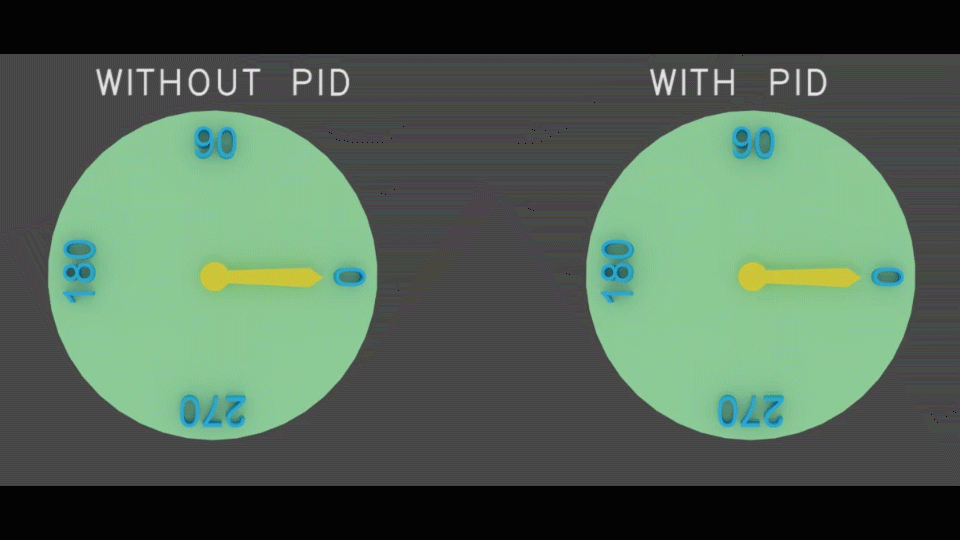
encoder

INPUT

Here we also using a PID which is very important for stability and accuracy

P proportion I integral D derivative

Basically, this is used for tuning for better sync



Requirement:

1. Communications: -

Hardware

Operator :(Circuit boards, transmitter, receiver, each type of indications,

Convertor, IOT)

Software

Socket programming, real time scanning of sensors, transfer data from rest

api.

1. electronics: -

Servo and stepper motor, batteries, processing boards, driver boards, camera

Functioning, memory devices, sensors)

1. motion dynamics:

dynamic physics, ease torque, gears, slimline (avoid air res.), delicate joints.

1. Simulator: -

Software:

Open cv, python, c++, ds-algo, ballistic calculation, sensors library (small part of IOT)

Hardware

2d inputs, hotkeys, and functioning keys

1. Optical

Lenses, filters (night, thermal etc.) camera operator, anti-abrasions, anti-mirage (hot air

error in lens)

1. Designing.

AutoCAD, 3d printer (for designing parts)

STAGES

* We have 3 stages in it: alpha, beta, gamma

Alpha stage: is a miniature project (in which a microprocessor with a normal sets motor and air gun is to be used with fundamental code and physics)

Beta stage: this is quite advance when this project will come under any government arm (we use good video processor and delectated motors with good lenses and with heavy code of calculations)

Gamma stage: here this project is made to run on ground and in army (it comprises standalone systems and securer network line with real guns and with heavy ballistic calculations)

REFERENCES

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[www.ballisticcalc,org](http://www.ballisticcalc,org) (for technical calculations)

[www.wikipidia.org](http://www.wikipidia.org) (for historical and statistical data)

THANKYOU