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LATITUDE AND LONGITUDINAL RANGING device (LLR - device)

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ABSTRACT

The objective of the paper is to study about the Advanced Version of GPS. By using GPS, only the location of an object can be found but my research says that we can able to find the location along with Latitude and Longitudinal manner along with its Altitude by using a device or a chip. I named this device as LLR device (Latitude and Longitudinal Ranging device). The theoretical setup is given along with some experimental setup of various scientists. If this Project came into existence, some missing objects from air planes to pet animals can be found with a fraction of seconds.

KEYWORD: Advanced Version, Latitude, Longitude, Altitude, LLR-device.

1.INTRODUCTION.

GLOBAL POSITIONING SYSTEM (GPS) :

GPS discovered by US Department of Defense at 1978. GPS consists of nearly 32 satellites roaming all over the world. Satellites are about 20180 kms away from Earth surface which is inclined at 55 degree for Line of Sight. A satellite sends electromagnetic waves such as microwaves and radio waves. GPS uses lot of complex technology and the method is simple. The GPS receiver gets a signal from GPS satellite. The satellite transmits the exact time the signals are sent. By subtracting the time the signal was transmitted from time it was received, the GPS can tell how far it is from each Satellite.

2. GPS METHODOLOGIES.

To find location of GPS satellites two types of data are required by the GPS receiver namely almanac and ephemeris.

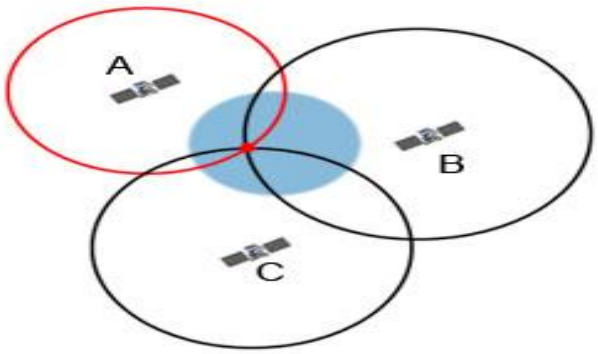
ALMANAC: The almanac contains information about status of the satellites and approximate orbital information. The information's obtained by almanac are not precise. If the Device is new it may require nearly 15 minutes to activate almanac.

EPHEMERIS: For fixing the object, GPS receiver requires additional data for each satellite, called the ephemeris which is precise. The main concept used is TRILATERATION. Our object is visible to 4 satellites 3 for Trilateration process and 1 for atomic clock. The Ephemeris can be broadly classified as

1. Cold start,

2.Warm Start,

3. Hot Start.



3.EXPERIMENTAL DETAILS:

QUANTUM BITS (QUBITS) :

Qubits are the units of quantum information's. Qubits works under the principle of **TWO-STATE QUANTUM-MECHANICAL SYSTEM** such as Polarization and Super-position. Qubits are Linear combination of Bits (Binary digits). The major advantage in Qubit is Super Dense coding.

POLARIZATION: The ability of a wave to accelerate more than in one direction. Polarization are restricted to certain directions of vibrations. Its classified into two states such as Horizontal and Vertical Polarization.

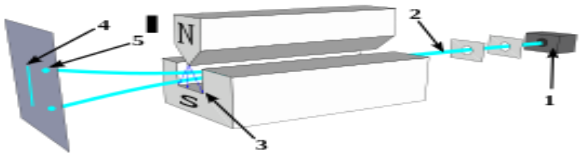
SUPER POSITION: The super-position principle states, for all linear systems the net response of an object given place and time caused by two or more stimuli is the sum of the responses which would have been caused by each stimulus individually. The waves are super-positioned by the concept of interference.

QUANTUM SUPER-POSITION: Two or more electromagnetic waves can be added together and the result will be an another valid quantum wave.

"The experimental setup of various scientists are as follows"

4.STERN - GERLACH EXPERIMENT:

The Experimental setup of Stern-Gerlach states “sending a beam of waves or particles inhomogeneous magnetic field and observing their deflection”. In the original experiment, silver atoms were sent through a non-uniform magnetic field, which deflected them before they struck a detector screen. Other kinds of particles can be used. If the particles have a magnetic moment related to their spin angular momentum, the magnetic field gradient deflects them from a straight path. The screen reveals discrete points of accumulation rather than a continuous distribution.



NORMAN FOSTER RAMSAY EXPERIMENT:

The person who was awarded Nobel Prize for research about Atomic clocks. He gained idea by RABI'S APPARATUS with concept related to Stern - Gerlach. He had proved that Stern - Gerlach is valid by finding the accuracy of hydrogen, tritium, deuterium. If atoms are possible why can't particle.. ? yes, according to WAVE-DUALITY principle.

WAVE- PARTICLE DUALITY PRINCIPLE:

Wave–particle duality is the concept that every elementary particle or quantic entity may be partly described in terms not only of particles, but also of waves. It expresses the inability of the classical concepts "particle" or "wave" to fully describe the behavior of quantum-scale objects.

CONCEPTS USED IN RABI'S APPARATUS:

Isidor Isaac Rabi discovered Rabi's apparatus. His concepts such as

1. NMR (Nuclear Magnetic Resonance).

2. Rabi Cycle.

3. Rabi problem

NMR PRINCIPLE: A phenomenon in which waves or particle in a magnetic field is absorbed and re-emit Electromagnetic radiation.

NMR USED IN LLR: According to my concept, the waves from satellites is passed through apparatus and made to fall in the detector screen so that automatically it will gets re-emitted at that

time Almanac and Ephemeris we can able to trace the location.

5.LLR DEVICE WORKING MECHANISM:

GPS Satellites will transmit or send waves in a certain frequency. The frequency are of 4 types

1. L1 (C/A)– Legacy signals i.e. it can able to publish for many other purposes.

2. L2C ,

3. L5 ,

4. L1C – these waves are modernized and only for encrypted users.

In order to find an object without any encryption we can use L1 (C/A) waves. Legacy signals will have a frequency of about 1575 MHZ (10.23 MHZ * 120). According to the concept of LINE OF SIGHT, waves will be transmitted. The wave is made to fall in a metal surfaces hence by using ALMANAC we can able to pin-point the location of object in ALTITUDE manner.

6.LLR DEVICE SETUP:

The device consists of arrangements as shown in Stern - Gerlach Experiment. It will pay the way for waves to strike on metal screen. After Striking the metal detector screen, by using ALMANAC we can find Altitude. "Altitude = waves released from satellites –Waves reached on the object". By Quantum Computing, two state mechanisms can be executed. If it exists, Superposition and Polarization of a particle can be done. Superposition process finishes at the time of waves striking the metal detector screen. Polarization is executed as soon as the waves reaches screen, and gets vibrated or reflected. The devices are equipped with Ephemeris and almanac at suitable separations. We discussed that polarization of two types

1. Horizontal and

2. Vertical.

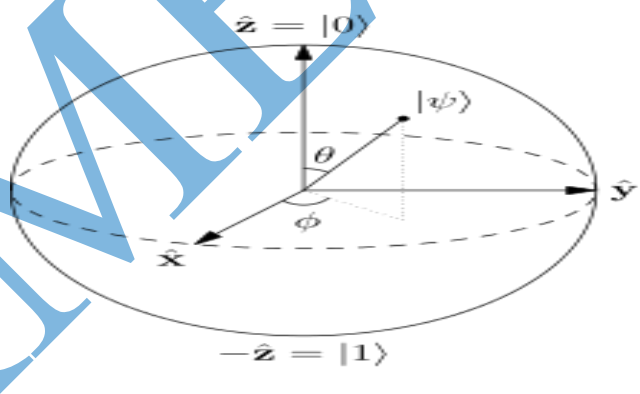
By using horizontal polarization, it's easy to find Latitude and by Vertical Polarization, it's easy to identify Longitude.

7.THEORETICAL PROOF:

A Theoretical proof is given by Stern - Gerlach experiment .QUBITS are Linear combinations of 0's and 1's.

$\Psi=\alpha(0)+\beta(1)$

where 'α' and 'β' are probability amplitudes. By the standard basis, the sum of squares of α and β is equal to one . This paved the way for Bloch Sphere.



8.SPECIFICATIONS IN LLR:

comparison between GPS and LLR.

GPS	LLR
Only Location can be identified.	Location along with latitude and longitude
We can able to locate only when it is "ON" condition.	We can able to find even when the object is in "OFF" condition.
Locations are not accurate	Locations are accurate

Each device should be embedded with 8 digit number along with alphabets, so that it can acts as a Primary Key. Hence we can access as a Foreign Key. In day-to-day purposes, a software can be built for accessing and identifying a particular object.

9.USES OF LLR:

1. In our world nearly 135 airplanes are missing from 1856 to 2016 only some of them are identified but remaining them are mysteries. If our project succeeds we can able to locate the latitude and longitudinal manner when it is embedded with airplanes.

2. If our defense forces are embedded with LLR, suppose if our army vehicles such as tanks and street fighters are hijacked we can able to destroy the hijacked vehicles by rocket launch aiming with Latitude and Longitudinal manner.

3. In Day-to-Day purposes,

*. Cell Phones,

*. Laptops,

*. Vehicles,

*. Airplanes and Ships,

*. Pet Animals,

*. Luggage's and bags,

*. In Railways.

10.CONCLUSION:

"NECESSITY IS THE MOTHER OF INVENTION" similar to this proverb the world is in need of this device, so that many mysterious problems can be solved immediately. Thus the brief description about Latitude and Longitudinal Ranging device is shown. My project may be innovative but in Real Time Systems it can be implemented by using QUANTUM COMPUTERS.

11. REFERENCE:

1. https://llrdevicemethodologiesbyhari.blogspot.in

2.https://www.maptoaster.com/maptoaster-topo-nz/articles/how-gps-works/how-gps-works.html

3. https://www.quora.com/Can-anybody-explain-Heisenbergs-uncertainty-principle-in-very-simple-terms