

Education System

System to have the earth map divided
tude to 1km square cell maps for map
this invention which was submitted on
/000671 Patent Numbers, which can be
frame and the following functions and



The image displays three distinct maps illustrating the 1km square cell system. The top map is a topographic representation with color-coded elevation zones and a road network. The middle map is a street map showing a grid of roads and buildings, overlaid with a dashed grid representing the 1km square cells. The bottom map is a network diagram showing a complex web of connections between nodes, likely representing data flow or network topology.



- The LPS Navigation System would come with LPS Towers network with the LPS atomic clock synchronized, and the LPS towers would be installed along the roads, along the freeways, across the neighbors, city to cities or country to countries to provide LPS signals for the LPS receiver devices or vehicles can receive LPS signals and locate their own positions on the maps. Wherein, the LPS Towers would be synchronized to the same atomic clock ticks before installing, and the LPS Towers would be

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separated in the well known distances which are used for the LPS receivers to calculate their position on the maps. The LPS Towers can be built with solar power and can be synchronized the atomic clock manually by the LPS Calibrator which was mentioned in the 'LPS – Local Positioning System' invention which was submitted on 2021/11/23 with U.S. PCT/US21/72562 and International PCT/IB2021/000949 Patent Numbers and posted on the website www.TheCloudOSCenter.com or can be synchronized with Automatic Clock Synchronization method. The LPS Navigation System would support missing or miscalculation alert and notify the malfunction LPS Tower to the Control Center for maintenance.

2. The main operational apparatus for the LPS Navigation System, comprising:

The LPS Towers would transmit LPS signals with the same frequency of timing interval with the same protocol, and the LPS receivers on the smart devices of vehicles can receive the LPS signals from the LPS Towers to calculate the position based on the distances from the LPS towers along the roads. Wherein, the LPS receivers receive and calculate the positions and distances to the LPS Towers since the LPS Towers with all the atomic clock synchronized and broadcasting the LPS signals every 1 second by default configuration with well known distances between each LPS Towers. The LPS Towers locations would be defined on the map, and the Map Navigation on the smart devices or vehicles with LPS receivers can locate themselves the locations of the devices or vehicles on the map correctly. The 'Cell eMap Live Updates System' invention which was submitted on 2022/11/07 with U.S. PCT/US22/79368 and International PCT/IB2022/000685 Patent Numbers would provide the entire earth map in cells which would be easier for the Map Navigation System which apply Neighbor-to-Neighbors routing technology while a neighbor cell map must have at least a road/way go through; this routing technology was originally intended for Cloud OS and described in the 'G-ROUTING ALGORITHM METHODOLOGY' invention which was submitted on 2022/12/23 with U.S. PCT/US22/82347 and International PCT/IB2022/000800 Patent Numbers. The Cell eMap Towers can be built with the LPS Towers to broadcast the cell maps around the Map Towers to provide the smart devices or vehicles the Cell eMaps before the vehicles rolling on.

3. The LPS Towers Installation and Layout coverage apparatus of claim 1 & 2, further comprising:

The LPS Towers would be initially synchronized the atomic clocks at the Control Center or the LPS Towers manufacturers before installing on their physical locations that would be defined on the map, and the LPS Towers would be connected as a network to have widely signal coverage like cell phone towers coverage to have the positions coverage as much as possible. Wherein, the LPS Towers would be synchronized their distances between each others when the Atomic Clocks are synchronized after physically installed to have the neighbor LPS Towers having each other distances which would also be used for initial LPS receivers' positions calculations and mis-calculation and send alert notification to the LPS Tower Control Center; the Magic Center Point or Position that was mentioned in the original invention would use a Circle Passing 3-Points Theorem to calculate the initial position of an LPS receiver when the LPS receiver is initially introduced at a random location within the LPS Tower network the LPS Tower network would provide at least 3 LPS Towers for transmission signal coverage at any given navigation location on the roads for the LPS receiver to locate its position on the map. For the perfect

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world, Atomic Clock Towers can be installed at Datacenter or each country which can be used to synchronize the Atomic Clock across the world faster and more accurate.

4. The LPS Navigation System transmission protocol apparatus of claim 1 & 2, further comprising:

The LPS Navigation System transmission protocol in normal mode would come with the recommendation of LPS Tower would send every interval with its ID, following its second-counter, and its nanosecond-counter, and then following with the LPS Tower Neighbor IDs plus the distances between its neighbors. Wherein, the LPS Towers would be synchronized the atomic clock and recorded their neighbors distances after physically installed and operational mode is enabled. The LPS Towers would transmit or broadcast the LPS signals with this operational mode protocol, and the smart devices or vehicles with LPS receivers can receive the LPS Navigation System normal mode protocol data to calculate the positions and locations on the map correctly.

5. The LPS Towers Atomic Clock Synchronization of claim 1 & 2, further comprising:

The LPS Towers would come with atomic clocks that can be synchronized manually by LPS Calibrator or by Automatic Clock Synchronization. Wherein, the LPS Calibrator which was originally designed in the 'LPS – Local Positioning System' invention which would be used to calibrate manually by placing the LPS Calibrator right at the LPS Tower beacon or at position zero or closest position with known distance for accurate calibration and triggered by the 'PAIR' button; note that the LPS Calibrator must have the official atomic clock accurately before calibrating. The LPS Navigation Towers would be in the large network and needed to have an Automatic Clock Synchronization protocol that transmits signal propagating across the LPS Towers network with the initial physical defined distances between each LPS Towers which would be used to determine to adjust the clock ticks as needed for each LPS Tower. The LPS Navigation System would come with the Clock Synchronization Command that would be sent from the LPS Tower Control Center with the data package that starts with Transmitter ID, following the Clock Sync Command and the LPS Towers ID Range. The LPS Towers that have their LPS ID in the range would accept and adjust the clock based on the neighbors' distances, and the LPS Towers that have their LPS ID not on the list would reject the Clock Sync Command; this would provide the LPS Towers Control Centers define their range of LPS Towers to control and manage within their own authorizations. When planning for LPS Navigation System, the planners should estimate for the number of LPS Towers and locations of each tower to have the good estimate of LPS Tower ID range more accurately for future expansion for larger LPS Tower network which may expand across the neighbor countries.

6. The LPS Towers Missing or Miscalculation Alert apparatus of claim 1 & 2, further comprising:

The LPS Navigation System would come with the mis/mal-function Alert Notification to the LPS Tower Control Center when an LPS Towers gone missing, power outage or tilted an angle which causes miscalculation. Wherein, the LPS Towers have their neighbors' distances and expected neighbor LPS Towers' signals every 1 second interval by default. When an LPS Tower got power outage or gone missing, the neighbor LPS Towers would recognize and send outward propagation alert command from neighbor LPS Towers to other LPS Towers until reach the Control Center. When an LPS Tower tilted or miscalculated its distance compare to its neighbors given distances initially, this LPS Tower would send outward propagation alert command from neighbor LPS Towers to other LPS Towers until reach the

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Control Center. The Alert Command would contain the Sender LPS Tower ID, following Failed LPS Tower ID and following the last timing counters. Each LPS Tower would receive its neighbors LPS Towers signals and check at least every hour for the separation or miscalculation. The LPS Towers would automatically send alert command 1 time per hour for the first day, 3 times per hour for the next day, then 1 per day for the following days to notify the LPS Towers Control Center until the failed LPS Tower got resolved.

Corrections: There were simi typos in the original invention document for the words 'Collaborate / Collaborating / Collaboration / Collaborator' which should be 'Calibrate / Calibrating / Calibration / Calibrator'.

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