

# Year End Summary – 2021

## The 5 Inventions of the year!

Author: Henry V Pham



### New Way to protect WiFi Network from Hackers

There are many different ways to hack into the current WiFi Network. And the current WiFi routers are difficult to setup for non-Network experience people. The current WiFi routers are default with visible WiFi name (SSID), and this will attract the hackers to hack into the WiFi router to have Network access.

I introduce the new way to protect the WiFi Network [WiFiSecured] completely from the hackers with the new WiFi router Press-and-Scan-to-Access. This new WiFi router Press-and-Scan-to-Access will provide the owners and users an invisible WiFi SSID and the WiFi Password without the user inputs.

The WiFi router should have a random WiFi SSID and a random Password label along with a wallet-card for factory-key and owner-key label that come with the WiFi router package. The WiFi SSID, WiFi Password, factory-key and owner-key should be in scan-able-code, barcode, QR-code or G-CODE labels. The Authentication Owner key contains WiFi SSID, WiFi Password, and the owner-key. The Authentication User key contains only WiFi SSID and WiFi Password. The "Press-and-Scan" button will allow the users to scan the G-CODE labels to have the Network access. To scan the WiFi SSID and the WiFi Password from the label, the users need to press and hold the "Press-and-Scan" button while scanning the label. However, for the owners accessing procedure, the device OS or WiFi application will ask to scan the owner-key to have a persistent owners WiFi Network access. For appliances and small devices

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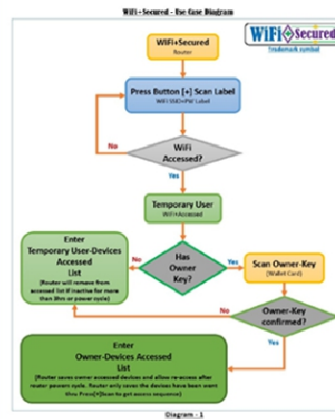
APPLICATION # 29,788,607  
RECEIPT DATE/TIME 07/01/2021 04:57:44 PM ET  
ATTORNEY DOCKET # -

Title of Invention  
New Way to protect WiFi Network from Hackers

#### Application Information

APPLICATION TYPE Design - Nonprovisional Application under 35 USC 171 PATENT # -  
CONFIRMATION # 1396 FILED BY Henry Pham

### New Way to protect WiFi Network from Hackers



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### The G-CODE

The G-CODE is designed to replace the existing dot-code or data-matrix labels like Barcode, Code-128, QR-CODE or any other Data-Matrix Code labels. The G-CODE can support any matrix data size from 8x8 to 64x64 with increment of 4 dots on each size, and 64x64 to 128x128 with increment of 8 dots on each size, and forever extendable size of 16 dots on each size from 128x128 and up until the computer cannot able to calculate the data checksum with current CPU supports of 64-bit. The G-CODE supports UTF-8, UTF-16 and UTF-32 as long as the user data matrix follows the G-CODE sizes described above. The G-CODE is designed with State Of The Art and is designed to last forever.

The existing Barcode, Code-128 and QR-Code contain low ratio of User Data verse Error Correction Codes. The existing codes cannot able to support dynamic extendable sizes, and do not provide the great Error Correction like the G-CODE does. The G-CODE provides up to 4 ways of line checksums, row-direction checksums, column-direction checksums, backward-diagonal-direction checksums and forward-diagonal-direction checksums. These 4 checksum methods will provide greatest Error Correction algorithm ever for the data matrix. With State Of The Art design, the G-CODE has the Great Eagle Symbol on the top part of the G-CODE frame, and the 4 identical square-corners with option of color or black-and-white mode. The 4 corners are painted with the U.S. flag in color mode, and painted with black-white-black squares in black-and-white mode. Next to these 4 square-corners, there are 2-pairs of duplicated checksums for entire user data, one for entire user data of rows-checksum and the other for entire user data of columns-checksum. These user data checksums are also calculated with 4-bit width in row-direction for user data rows-checksum, with 4-bit width in column-direction for user data columns-checksum. The G-CODE labels always come with 3-lines border, 2 solid lines and 1 white line. These border lines create a nice looking and great decoration for the G-CODE labels. The user data matrix is in the middle of the G-CODE labels, and the lines between the user data matrix and the border are the rows, columns, and the diagonals checksum lines. The G-CODE checksums are calculated by every 4-bit width of the data matrix for rows, columns and diagonals lines. The magic of 4-bit data checksum is to provide more

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### The G-CODE

#### Scratched Area Error Correction

Let's start with more complex scratched data label, we can try the Error Correction for scratched area in Fig-9 with yellow scratched area of 10 missing dots. Assuming that we have all the R(n) and C(n) checksum lines are corrected after scanned in from the label. The algorithm will scan for errors using R(n) and C(n) cross-checking method. Fig-10 on the left hand side will mark 'E' with value of '0' as an assumption for entire yellow area plus 2 dots at r7c9 and r8c9 because the R(6), R(7), R(8), C(9), C(10), C(11) and C(12) calculated checksum lines are not correct.

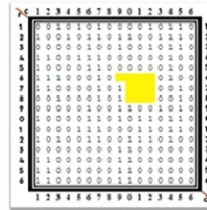


Fig-9: G-CODE-Data-[16x16] with scratched area

For this type of scratched errors, the algorithm will search for the checksum line with only one 'E' dot like Xb(11) at point r6c12, Xb(16) at point r8c9, Xf(14) at point r6c9, and Xf(3) at point r8c12. However, in this G-CODE sample label Data:[16x16]:[32x32] does not have these Xb(11), Xb(16), Xf(14) and Xf(3). We do have Xb(1), Xb(5), Xb(9) and Xb(13) checksum lines. In this case, the algorithm will chose the most crossing point available checksum lines, and this would be Xb(13), R(7) and C(11) at point r7c11 as shown in Fig-10 below.

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### Electronic Acknowledgement Receipt

EFS ID:	43683265
Application Number:	29806573
International Application Number:	
Confirmation Number:	6641
Title of Invention:	THE G-CODE
First Named Inventor/Applicant Name:	Henry viet Pham



# Year End Summary – 2021

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Author: Henry V Pham



### Cloud OS – Operating Systems

Cloud OS Operating Systems, the OS that operates in the cloud and each of the Cloud OS servers can serve more than 100 users and each user has their own personal virtual OS in Cloud. The Cloud OS servers will connect to each other to form the Worldwide Cloud OS networks. One Cloud OS server can host Authentication Services, Security Services, Web Services, Video Streaming Services, VoIP Services, and many other services. The client devices will be the User Screen Console (USC) devices. The USC devices will be very simple and only have a Video card, Audio card and a Network card. The USC devices do not have a hard drive or storage device like the existing PCs or laptops, and will not allow install any third party software. The user personal info, username and password will not save in the USC devices. The USC devices communicate to the Cloud OS via Communication Services. Communication Services will have different Protocols with different Communication Keys and will be different for each service. Each time the USC devices connect to Cloud OS, the Communication Services on client side and the Cloud OS side will use different Communication Protocol with different Communication Keys. This new design of Cloud OS – Operating Systems will be more secured than ever. With State Of The Art design, the Cloud OS will provide the users with more secured, more reliable, more user friendly, and save much more money on client devices with no maintenance.

The existing Linux, Windows and macOS Operating Systems are not secured. The user data, user personal information, include username and passwords are stored on both the user devices and also stored on the servers. With existing Operating Systems, the users have to remember their account login for each service like email accounts, bank accounts, credit card accounts, Web services accounts, and all other services accounts. All the username and passwords stored on the user devices can be decoded by a Super User or Windows Admin logins. This is dangerous for the users if they lose their PCs, laptops or tablets. The new Cloud OS will resolve these problems

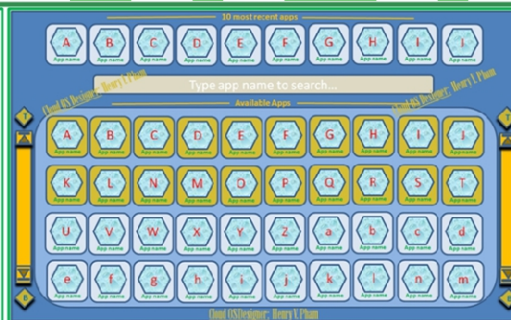
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APPLICATION # PCT/US21/71689 RECEIPT DATE / TIME 10/02/2021 12:09:49 AM ET ATTORNEY DOCKET #

Title of invention  
The Cloud OS - Operating System

#### Application Information

APPLICATION TYPE International Application (PCT) for filing in the US receiving office PATENT #  
CONFIRMATION # 2019 FILED BY Henry Pham  
PATENT CENTER # 60330200 AUTHORIZED BY -  
CUSTOMER # - FILING DATE -  
CORRESPONDENCE Henry V Pham APPLICANT NAME Henry V Pham



### Cloud OS – Operating Systems

OS or their organization, but cannot able to execute their code or application worldwide unless the application is certified and compliant with Cloud OS.

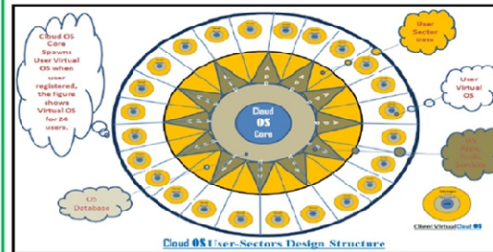


Fig-9: Cloud OS Sector-like Design Structure

### Cloud OS File Format Structure

The File Format will have 16-bit for File-Type, 16-bit for File-Subtype, 32-bit Copyright Tokens, 64-bit File Date Time, 64-bit File Checksum, 64-bit Total File Length, 32-bit total of sections, and 255 bytes long for filename. The filename field is used for secured purposes, the Cloud OS do not allow the users or owners to change the executable file which are already compiled or created to prevent the executable file get renamed to other file type then execute for other purposes. The File Format below describes the new file structure with the Checksums and the 1s bits data encoding/decoding

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## The 5 Inventions of the year!

Author: Henry V Pham



### The LPS – Local Positioning System

The LPS – Local Positioning System is designed to guide, locate and track any devices, robot cleaners, robot carriers, or any vehicles inside the building, warehouse or manufacturing. The LPS can be extended to Mobile-LPS; the LPS system that can be anywhere in space or on other planets without GPS availability. The Mobile-LPS system can be used for Network of Flying Objects or Network of Moving Objects. Not like the GPS, the LPS can operate in high frequency for faster data broadcasting with more accuracy and work inside big building or even under the tunnels, and the signal can go thru the walls.

The GPS system works great for objects or devices in outside open space, but the accuracy is not yet satisfied and could be more than few meters errors. The GPS system operates with many different levels of frequency (L1 frequency at 1.575 GHz, L2 frequency at 1.227 GHz, etc...). With the current FCC approval of 5.0 GHz RF transmitter, the LPS system can operate at this frequency or higher to provide the LPS system more accurate and works anywhere in any environments. The GPS devices and the satellites are too far from each others, so the difference of distances from point-to-point of the GPS devices is hard to calculate and yield more errors compare to the LPS system. The GPS system works great for large objects in outside open area, but not for small objects. If the Atomic Clock oscillator can be improved to 10x faster or higher, we will have even higher accuracy than within 12 inches.

With this new LPS system, any devices, big or small, inside or outside can work great with high accuracy of 12 inches with relative locations to a fix-point of the LPS system. Not like the GPS, the LPS system is easy to collaborate, maintain, and improve without worry of devices out of clock synchronization or power outage. The LPS transmitter devices can be installed anywhere and easy to collaborate with a simple LPS Collaborator device. The LPS system can be widely used for many applications in many other platforms, such as single LPS transmitter for robot cleaner, 3 or more LPS transmitters for robot carrier in warehouse or manufacturing, great system Air Traffic Control for airports with combination of Radar-GPS-LPS system, great for military and security patrol system, and even great for Drones-in-Mars or other planets.

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### The LPS – Local Positioning System

#### Drone Circulation Application

Figure-7 shows an idea for drone use in security, patrol circle or for hobby toy drone flying with just 2 LPS transmitters vertically in a pole. The vertical LPS transmitters and drone can be self-collaborated at position zero of either LPS transmitter for easy positioning and flying application. With the idea of using vertical LPS transmitters, the drone in Circulation Application can be controlled the altitude without using ultrasonic sensor in drone and keep drone at the same altitude and radius of the circle. This could be a great idea for security point or military patrol applications.

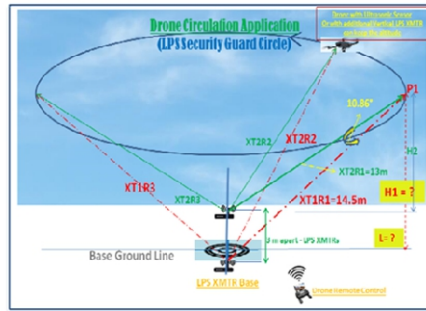


Figure-7: LPS for Drone Circulation Application Calculation

APPLICATION # PCT/US21/72562 RECEIPT DATE / TIME 11/23/2021 12:40:35 PM ET ATTORNEY DOCKET # -

Title of Invention  
The LPS - Local Positioning System

#### Application Information

APPLICATION TYPE International Application (FCT) for filing in the US receiving office  
CONFIRMATION # 4809  
PATENT CENTER # 60413592  
CUSTOMER # 183405  
CORRESPONDENCE Henry Viet Pham

PATENT # -  
FILED BY Henry Pham  
FILING DATE -  
APPLICANT NAME Henry Viet Pham  
AUTHORIZED BY -



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## Greatest Performance Hard Drive (G-Drive)

The Greatest Performance Hard Drive (G-Drive) is invented to provide the greatest performance for storage hard drives in real life systems with **RDMA (Rotation Division Multiple Access)** technology. The **Cloud-OS** was invented with the **RDMA technology** to allow each user has a chance to access their data on every rotation of the hard drive disk. This invention will introduce the new Hard Drive with new Geometry Disk Layout, dual CPUs, and dual Actuators with additional Writer Port to provide the Hard Drive with greatest write and read performance. The G-Drive will have three controllers; the main controller will communicate with the host and control the other two actuator controllers. The main controller will pass the host read and modify commands to Actuator-1 controller, and pass the host write commands to Actuator-2 controller. The Actuator-1 controller will handle the read/modify commands from host. The Actuator-2 controller will handle host write commands data to the outer SMR temporary zones (25% outer LBAs), then both controllers will manage and organize the data to their target locations when they have a chance. This will improve the random operations performance close to the sequential operations. Each actuator controller has its own CPU to control its Actuator for Servo heads and arms moments. The G-Drive will have additional LED flashing at a fix position with a Photo Sensor to track and count every rotation of the disk. This LED feature will help the Servo Controller to seek to a specific location, Sector, Track or Zone faster and more accurate. The G-Drive disk will be divided into **36 clove Rotational Zones**, and the data disk space will be divided into **16 Radius Zones** within the Data Radius with the same space from each other. This 16 Radius Zones create **16 Circular Tracks**; these tracks will be the **Radius Sector Info Tracks**. With this Geometry Disk Layout and the LED at 0° degree of the disk, the G-Drive will perform greatest seeking to any location, sector or LBA faster and more accurate than the current hard drive technology. The G-Drive will write data LBA outward direction opposite with the current hard drive technology. The LBA outward direction orientation will provide the OS easier to organize the system files, system data and the user data.

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## Greatest Performance Hard Drive (G-Drive)

### G-Drive Main Process

Figure-5 shows the main process of the G-Drive. Actuator-1 Controller process host Read/Modify commands directly from/to target disk LBAs. Actuator-2 Controller handles host Write commands; the controller write data to the SMR or temporary zones. When the system is free, Actuator-2 Controller performs read from the beginning of the SMR temporary zones and pass data to the Actuator-1 Controller to handle write data to the target locations. When one of the Actuator Controller is free, this controller will read and re-organize the data from temporary zones to target locations.



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APPLICATION # PCT/US21/72563 RECEIPT DATE / TIME 11/23/2021 12:47:54 PM ET ATTORNEY DOCKET # -

Title of Invention  
Greatest Performance Hard Drive (G-Drive)

### Application Information

APPLICATION TYPE International Application (PCT) for filing in the US receiving office  
CONFIRMATION # 7441  
PATENT CENTER # 60413650  
CUSTOMER # 183405  
CORRESPONDENCE Henry Viet Pham

PATENT # -  
FILED BY Henry Pham  
FILING DATE -  
APPLICANT NAME Henry Viet Pham  
AUTHORIZED BY -

