Wall Security Camera System

Henry V. Pham

Introduction

The **Wall Security Camera System** is invented with State of The Art in mind to provide our lives more secured in many dangerous cases to instantly view and monitor outside views of the living rooms, bedrooms, offices, etc…, at anytime without having to open mobile camera app to check while the doors and the windows are closed and covered. This Wall Security Camera System is also intended to resolve the existing security camera system issues when the users have the security camera online account to view their motion events, but the video files could have been deleted by hackers, and lagging issue of delaying video notifications. This new security camera system invention provides the users with solid video recording files and quick delivery of alert event notifications.

Figure-1: Wall Security Camera System - Overview

The Wall Security Camera System can be provided with wire or secured wireless connection from the **Wall Security Camera Viewer** to the camera, and this system works great with my other invention "**Auto Following Motion Security Camera**" with auto following focus and target on the motion object. However, this system also supports existing camera without auto following motion feature. Figure-1 above shows a complete overview of the Wall Security Camera System with Camera Hostspot and mobile Security Camera App view. The Wall Security Camera Viewer supports external memory card which can be stored video files directly on this device locally, and the Wall Camera Viewer should able to use data file circular recording method to keep continually recording within the memory size without having to change the memory card. With this design, the Wall Security Camera Viewer can be in standalone and good for monitoring outside views within a room locally. The Wall Security Camera Viewer should able to support scanning for motion and alert.

The Wall Security Camera System is invented in a complete security camera system included the Camera Hostspot which hosts the camera viewer and cameras. The **Camera Hostspot** can able to buffering video files for each camera and send motion alert photo frames to the Mobile Security Camera app via online storage and ready for user's secured Cloud OS account video storage. With Camera Hostspot, we can able to view the alert quicker in series of photo frames captured during a defined motion timeframe before the users can view the complete motion alert video files.

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Hardware Requirements

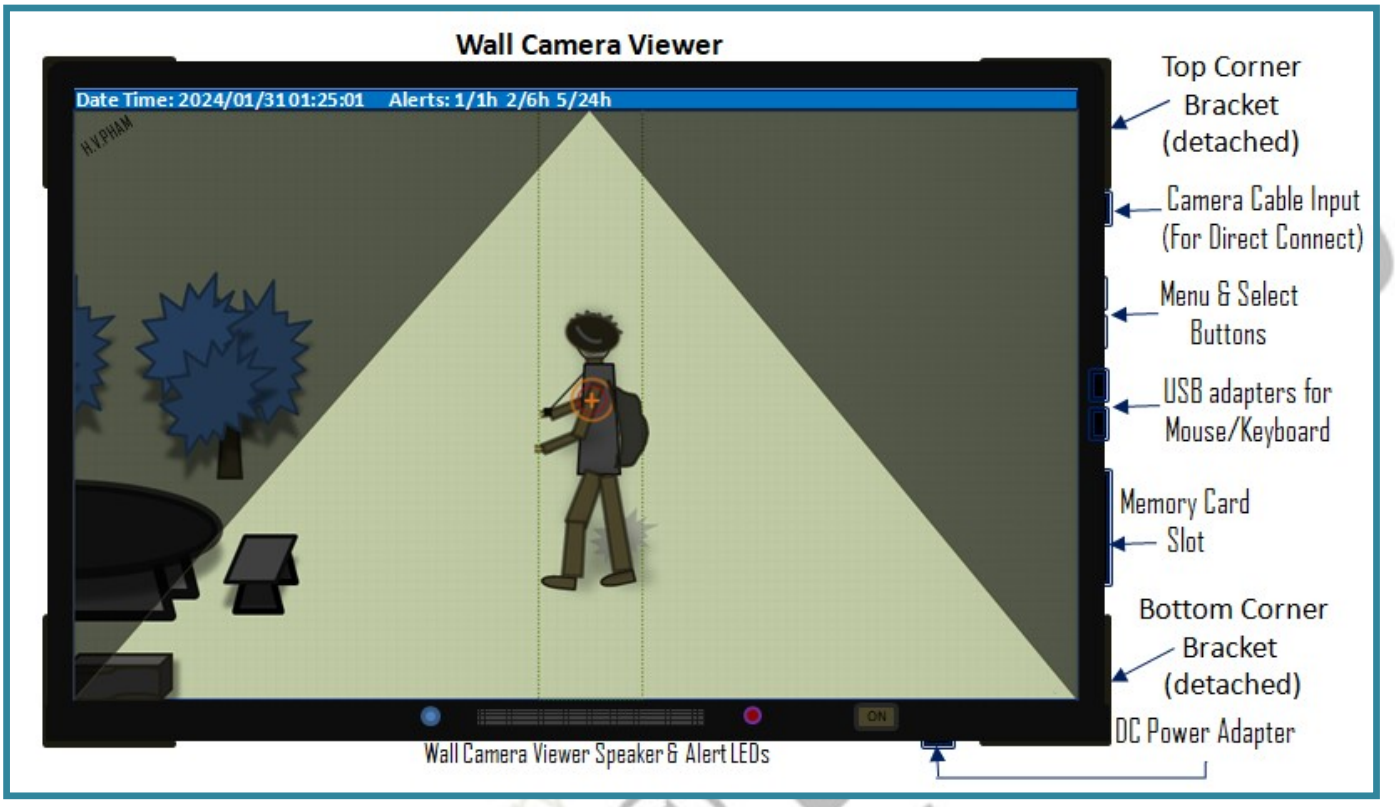

Figure-2: Wall Security Camera System – Wall Camera Viewer

The Wall Security Camera System requires a camera connection with options either wire or secured wireless or both, and a memory card slot for external memory storage for security and convenience when removing the memory card and check right on the computer. The Wall Security Camera Viewer can be either standalone version without wireless connection and store recording video files only to its own local memory storage. The Wall Security Camera Viewer can also come with secured wireless device to connect to the Camera Hostspot to forward motion video recording files to online storage or can be sent to the Cloud OS account storage when the Cloud SO is ready for use. The Wall Security Camera Viewer should support a speaker to allow playing alert sounds when detects a motion. This camera viewer supports motion detection with the basic frame pixels scanning algorithm which will be listed later in this invention under Firmware/Software Requirements section. When the camera viewer detects a motion, the red LED can be used to alert by blinking to notify the camera is detecting a motion and recording. The green LED can be used as the power on status. The Wall Security Camera Viewer should come with USB adapters to connect mouse and keyboard directly to allow the user setting up the camera connection to this camera viewer. Figure-2 above shows the Wall Security Camera Viewer which is hanging on the wall with the 4-corners brackets. Note that the manufacture can rearrange the adapters, buttons and LEDs locations, so the Wall Security Camera Viewer can be mounted on the wall. The Wall

Security Camera Viewer should display current date time and the alert statistic as shown in Figure-2 above with the suggested format with number of alerts per defined hours “1/1h 2/6h 5/24h” which will be described more in software requirements section.

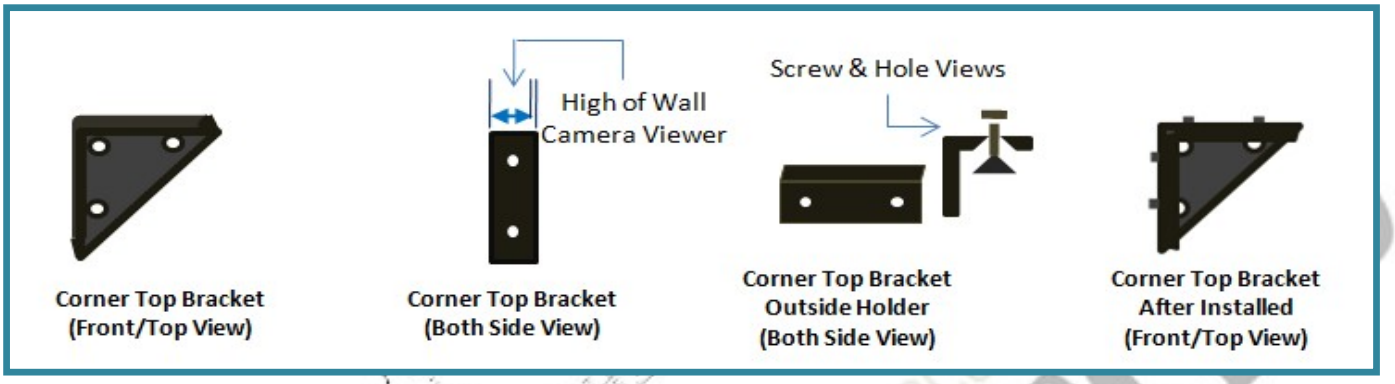

Figure-3: Wall Security Camera System - Camera Viewer Top Mount Brackets

The top 2-corners brackets are shown in Figure-3 above in different views. The top corner bracket should have the corner triangle bracket as shown on the left, and should have 3 holes to drill on the wall and 2 holes on each side to lock the Wall Security Camera Viewer from falling down with the outside holder as shown in the 3rd image in the drawing. The last image in the drawing shows the top corner bracket with all these parts put together.

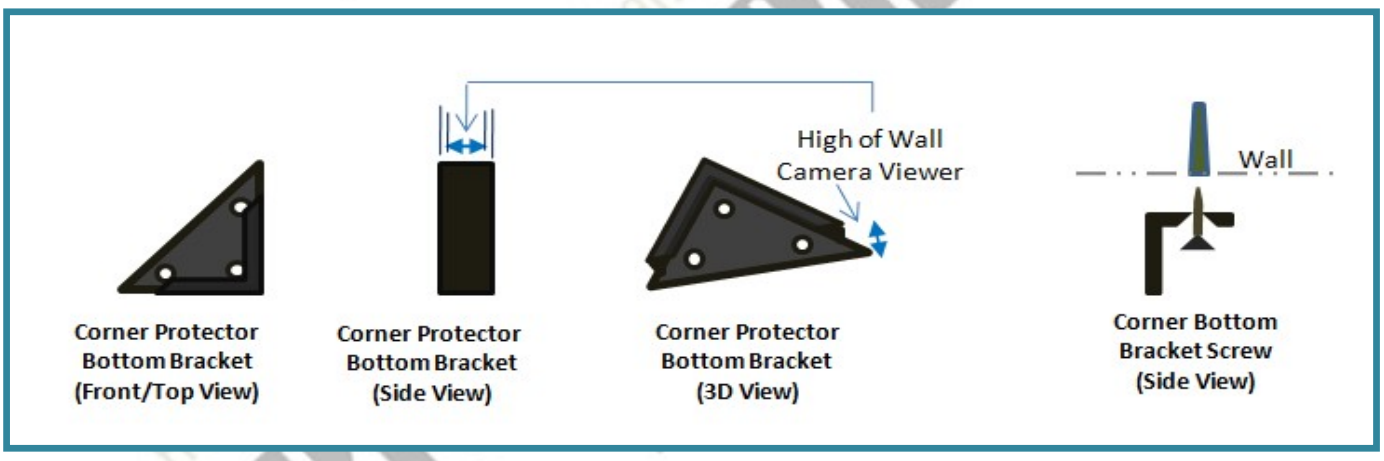

Figure-4: Wall Security Camera System - Camera Viewer Bottom Mount Brackets

The bottom 2-corners brackets are shown in Figure-4 above in different views. The bottom corner bracket should have the corner triangle bracket as shown on the left, and should have 3 holes to drill on the wall and without holes on the sides, but it should come with the lock outer edges on the outer of the bracket to hold the Wall Security Camera Viewer at the bottom from falling down. The high of the holder of the corner bracket should be the same thickness of the Wall Security Camera Viewer to hold the camera viewer well tie enough.

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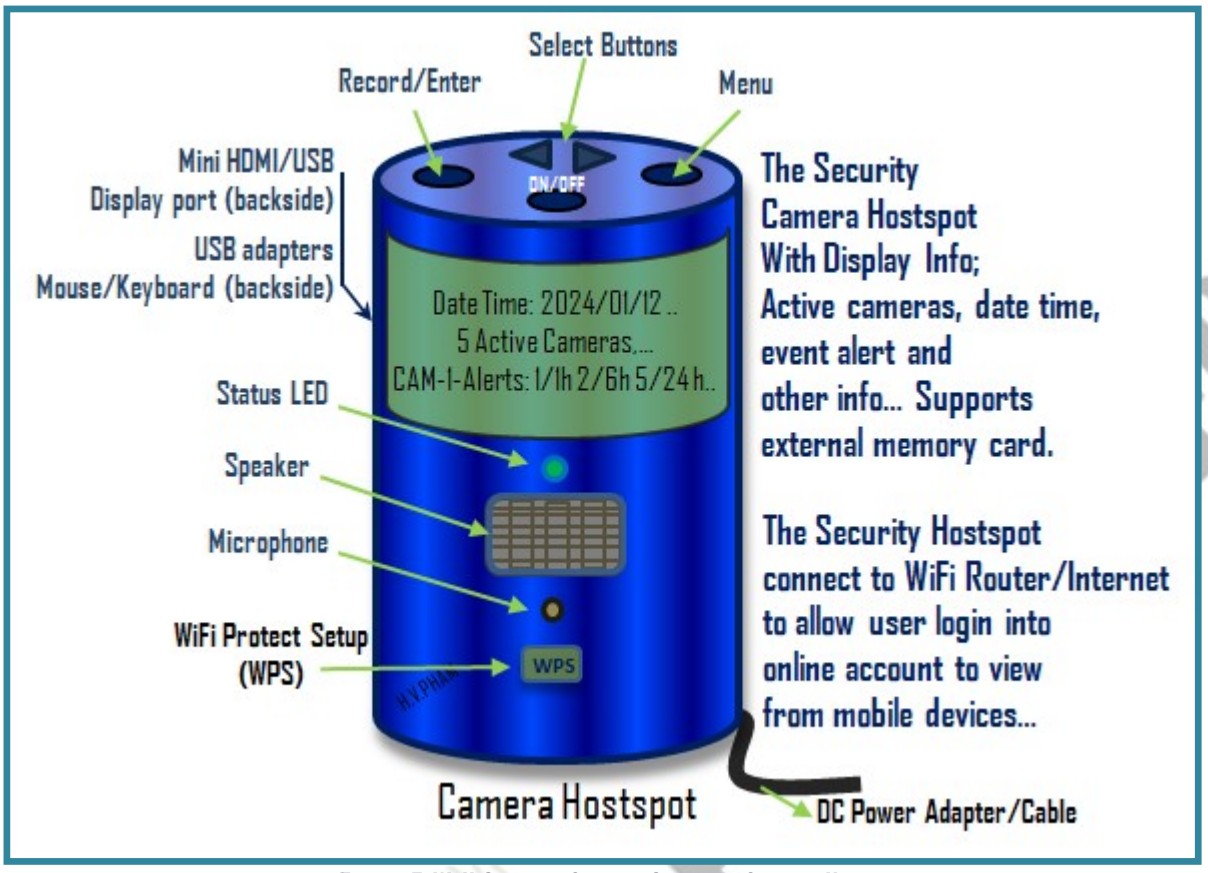

Figure-5: Wall Security Camera System - Camera Hostspot

The Camera Hostspot shows in Figure-5 above is not yet a WiFi or Wireless router, but it can use to setup to use the WiFi network for wireless connection via a common WPS feature button; the Camera Hostspot is used to host cameras and Wall Security Camera Viewers. The Camera Hostspot would support WPS function to allow setting up the WiFi connection to host the local cameras. When Cloud OS is ready to use, the WiFi router can be replaced with the **Cloud OS Hostspot** for high secured Wireless connections with **WiFi[+]Secured™** protocol, Press and Scan to get access from the invention "**New Way to Protect WiFi Network from Hackers**" which was submitted on 2021/07/01 with the **U.S. Patent number 29/788,607**. The Camera Hostspot would have a secured ON/OFF button, a menu button with select buttons to setup and configure wireless connections and cameras. The Record/Enter button can be used with the Menu button to record custom alert sounds and the camera names. This function is optional; the manufacture can add this feature for more users friendly. These buttons can be rearranged or used with different names to match with the menu functions that fit the manufacture hardware and software development in this device. The status LED will display blinking in red to indicate one of the cameras is on motion alert, and shows solid green for good condition. Below is the list of functions and features that the Camera Hostspot should support for the Wall Security Camera System.

- The Select Buttons can be used for volume +/- control when the user pressed without pressing the Menu button.

- No Mobile App is needed to control and setup the Camera Hostspot for security purposes while this Camera Hostspot would support mouse and keyboard connections and a display adapter to an external monitor to configure and setup the cameras connections.
- Setting up WiFi for the Camera Hostspot can be used WPS button with the existing WiFi routers. However, the WPS button function can be used with the **WiFi[+]Secured™** router when this router is available in the market with the WPS button with 2 step actions to double confirm for connection link between the 2 devices, the peripheral and utility devices. Please refer to the invention "**New Way to Protect WiFi Network from Hackers**" for more details.
- Setting up cameras to the Camera Hostspot can be used via the WPS button. The camera should support WPS button as well, and the user can press WPS button on the camera, then go press WPS button on the Camera Hostspot to setup the connection link between the camera and the Camera Hostspot within a minute timeout. This step requires 2 times for secured purposes and to confirm the Secured Wireless connection link between the devices for persistent connection even when power outage and back on. The 2 steps of WPS function connection link like the **WiFi[+]Secured™** router provides the 1st step for temporary connection and the 2nd step for persistent access or 2nd step to confirm as the owner connections to prevent other devices around the neighborhood have a chance to get in at about the same time.
- The Camera Hostspot would support to record custom name of each camera; when the Camera Hostspot detects motion, the device will alert the camera-name along with the alert sound or voice that has been recorded. This function is optional; the manufacture can add this feature for more users friendly. However, the Camera Hostspot should support suggested camera names when setting up new cameras. The camera name can be used voice recognition by say the name or by spelling out one letter at a time option or can be enter from the keyboard with the external monitor connected to this Camera Hostspot.
- The Camera Hostspot should display current date time and the alert statistic as shown in -5 above with the suggested format "1/1h 2/6h 5/24h". The display on the Camera Hostspot is helpful for the users to identify the camera which is active and in motion alert with alert sounds, plus the external monitor to display all the connected cameras with the current views and the current recording video of the active camera on motion alert.
- The Camera Hostspot would support external memory card to store video files with the circular recording method to keep continually recording within the memory size without having to change the memory card.
- The Camera Hostspot would support mini HDMI or USB display adapter to connect to an external monitor to display the views of all the active cameras. The cameras layout should fit well for all the connected cameras to display all on the screen which also depends on the resolution of the display monitor. Figure-6 below shows the Camera Hostspot monitor with output screen shows all 9 connected cameras, which can be a portable monitor to view all the connected cameras. This monitor can be used to setup cameras to connect to the Camera Hostspot for supporting motion

configuration in detecting zones for each camera. The Camera Hostspot would have USB adapters to connect mouse and keyboard to help the users configure cameras with naming and to connect to WiFi network. The Camera Hostspot and the external monitor with mouse and keyboard devices are suggested to have direct connections instead of wireless for security purposes.

Figure-6: Wall Security Camera System - Camera Hostspot Monitor

Firmware/Software Requirements

The Wall Security Camera System should support motion alert by scanning motion object and send notification with the basic scanning algorithm. The below is the basic algorithm shows how to scan for a motion object between the previous capture image to the current capture image.

// Basic Guideline Function Scan Horizontally: Start scanning horizontal direction from left to right for //resolution 1000w x 600h.

```
funcScanHzn(600PixelsLine, 10PixelesStep)
{
   For each pixel line with 600 pixels; step by 10 pixels
   {
```

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```
    If (previous image Line Pixel != current image Line Pixel)
    {
        (H1) Mark line changed for this pixel number changed flag for lookup later;
        (H2) Save start pixel number if (equals -1) not save yet for first scan of this line (initial value = -1);
        (H3) Save end pixel number of this line to mark the last pixel changed;
        (H4) Record number of pixels changed for this line (initial value = 0);
    }
    Else and if already found changed pixel lines, make sure this is the last line
    {
        Scan forward every 1 pixel line to find the actual last pixel line for better motion shape and set
       (H1, H3, and H4 lines).
    }
  }
}
```

// Basic Guideline Function Scan Vertically: Start scanning vertical direction from top to bottom for //resolution 1000w x 600h.

```
funcScanVrt(1000PixelsLine, 10PixelsStep)
{
  For each pixel line with 1000 pixels; step by 10 pixels
  {
     If (previous image Line Pixel != current image Line Pixel)
     {
        (V1) Mark line changed for this pixel number changed flag for lookup later;
        (V2) Save start pixel number if (equals -1) not save yet for first scan of this line (initial value = -1);
        (V3) Save end pixel number of this line to mark the last pixel changed;
        (V4) Record number of pixels changed for this line (initial value = 0);
    }
    Else and if already found changed pixel lines, make sure this is the last line
    {
        Scan forward every 1 pixel line to find the actual last pixel line for better motion shape and set
       (V1, V3, and V4 lines).
     }
  }
}
```

// Guideline: Check for any motion shapes found for resolution 1000w x 600h.
// 1st, check and connect the motion width horizontally

```
For each pixel line with 600 pixels; step by 10 pixels or Start to Last Changed Pixel Line
{
   if(current image Line Pixels in step (H4) > 0)
   {
       (a) Save start motion line number if (equals -1) not saved yet (initial value = -1);
       (b) Save end motion line number as the next or last line;
   }
```

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}

// 2nd, check and connect the motion height vertically

For each pixel line with 1000 pixels; step by 10 pixels or Start to Last Changed Pixel Line

{

if(current image Line Pixels in step (V4) > 0)

{

(a) Save start motion line number if (equals -1) not saved yet (initial value = -1);

(b) Check if this line has pixels changed within the scan in steps (H2, H3, V2, V3);

(c) Save end motion line number as the next or last line;

}

}

// 3rd, check and connect the motion shape if found

Check and validate motion shapes

1) Find the width of the motion shape in pixels = Last Changed Line(H3) – First Changed Line(H2);

2) Find the height of the motion shape in pixels = Last change Line(V3) – First Changed Line(V2);

3) For this application, we only need to find the rectangle of motion shape, so we can use the last and first lines of the motion shapes; and no need to identify and redraw the actual motion.

4) The Camera manufacture can adjust and tune this algorithm from 10 pixels to 5 pixels or lower pixels step if needed.

5) To detect slow moving object better, suggest to keep capturing image every 5 seconds and scan for the different pixels changed within every 5 seconds for slow motion object.

6) And keep track and ignore tree leaves moving when it's windy by checking the motion noise moving back and forth, not the entire shape moving.

7) If more than 1 shape is found, then use the largest shape. This is the motion object shape within the rectangle.

The above scanning methods can help to recognize the motion object within a rectangle for the capture images in monochrome mode to compare pixel by pixel of the capture images. When detecting the motion in rectangle with the above methods, the Wall Security Camera Viewer would identify enough to alert the users. Below are the examples shows how the motion moving from position P1 to position P2, then to position P3 with the formula given to identify the motion object center that the Wall Security Camera Viewer can be used. This basic scanning algorithm is part of my other invention "**Auto Following Motion Security Camera**", which is similar scanning method for a motion object in rectangle to determine the object positions to trigger alert for the camera system.

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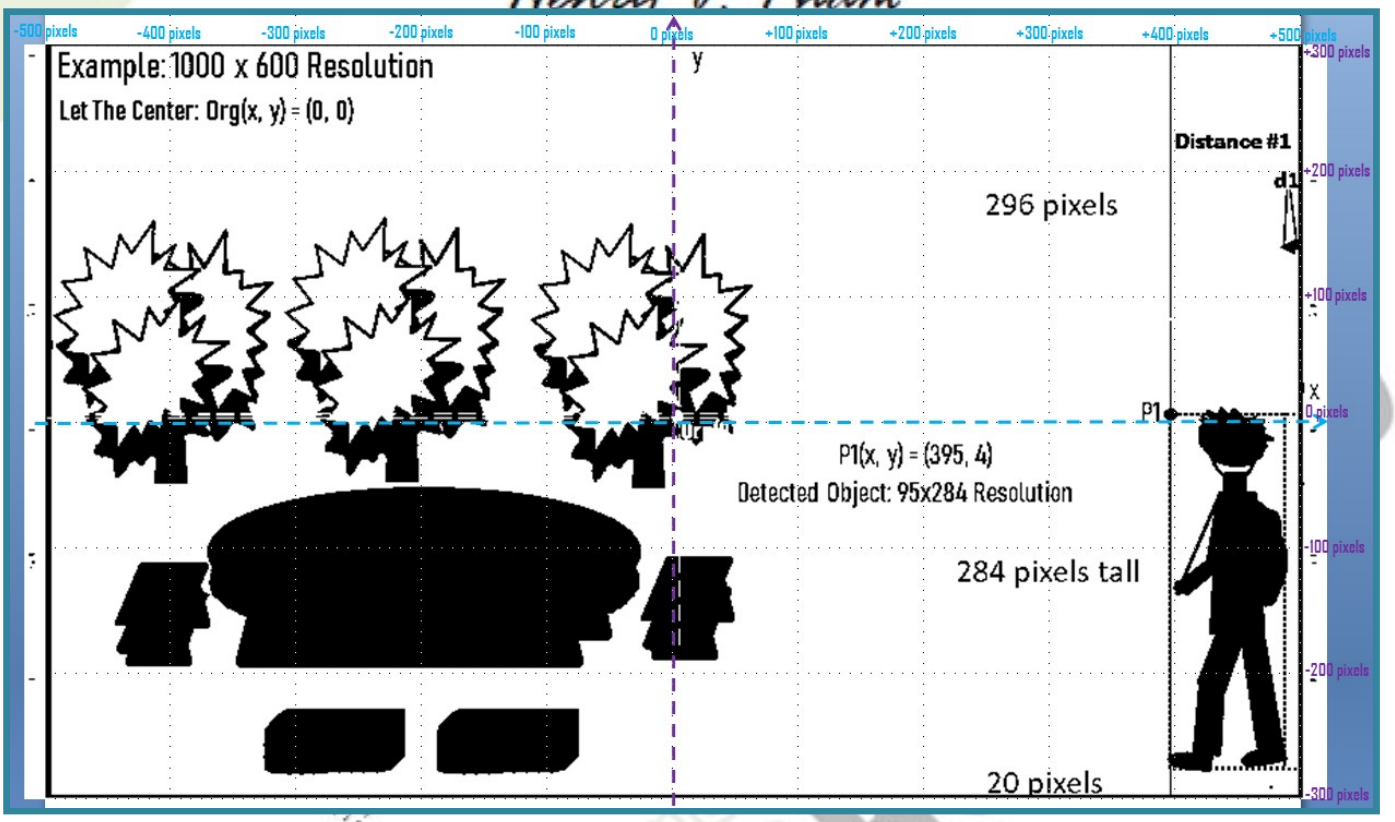

Figure-7: Wall Security Camera System - Scanned Motion Image at Position P1

The technique to scan the image for the difference quickly is the save the image in monochrome or in raw bmp file mode, then scan and compare pixel by pixel of the 2 images. Figure-7 is the monochrome mode with the pixel scales showing in the x and y coordinates with the center origin point Org(0, 0). Below are the steps from capturing a mono-mode image every 0.25 second in circular buffers and put the capture images in order of timestamp to compare and scan for the detected motion rectangle.

1. Capture and save image in monochrome mode (bmp) or raw mono mode every 0.25 second.
2. Follow the basic algorithm provided above to scan for the motion shape. Then use the center position as the offsets to calculate position $\mathbf{P_n}(x, y)$ for x and y pixel coordinates to use the formula below.
3. From the above method applied for this figure, we have the motion in the rectangle 284 pixels height and 95 pixels width at the position P1(395, 4) from the origin at the center; and the rectangle above the baseline 20 pixels. The position P1 is the first detected position.
4. Let the motion rectangle shape be $R_m(w, h) = R_m(95, 284)$; where w is the width and h is the high of the motion rectangle. The suggestion motion Center Target Position $P_c(x_c, y_c)$ formula for this position is,

   $$\mathbf{P_c(x_c, y_c) = P_n(x_n, y_n) + R_m(w/2, -h/3) = P_n(x_n + w/2, Y_n - h/3);}$$

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This formula should work for the motion comes from any direction. This case the motion is coming from the right direction; comes from the left direction also works with this formula. Note that the center position is right at the center of the capture image which is used in x and y coordinates. Then from the figure above, we have $P_c(395 + 95/2, 4 – 284/3) = P_c(442.5, –90.7) = P_c(443, –91)$;

Where x = +443 pixels in x-axis, and y = –91 pixels in y-axis from the center origin of the capture image. While recording and tracking the motion target object, the device should alert with prerecording sounds or voices to notify the users.

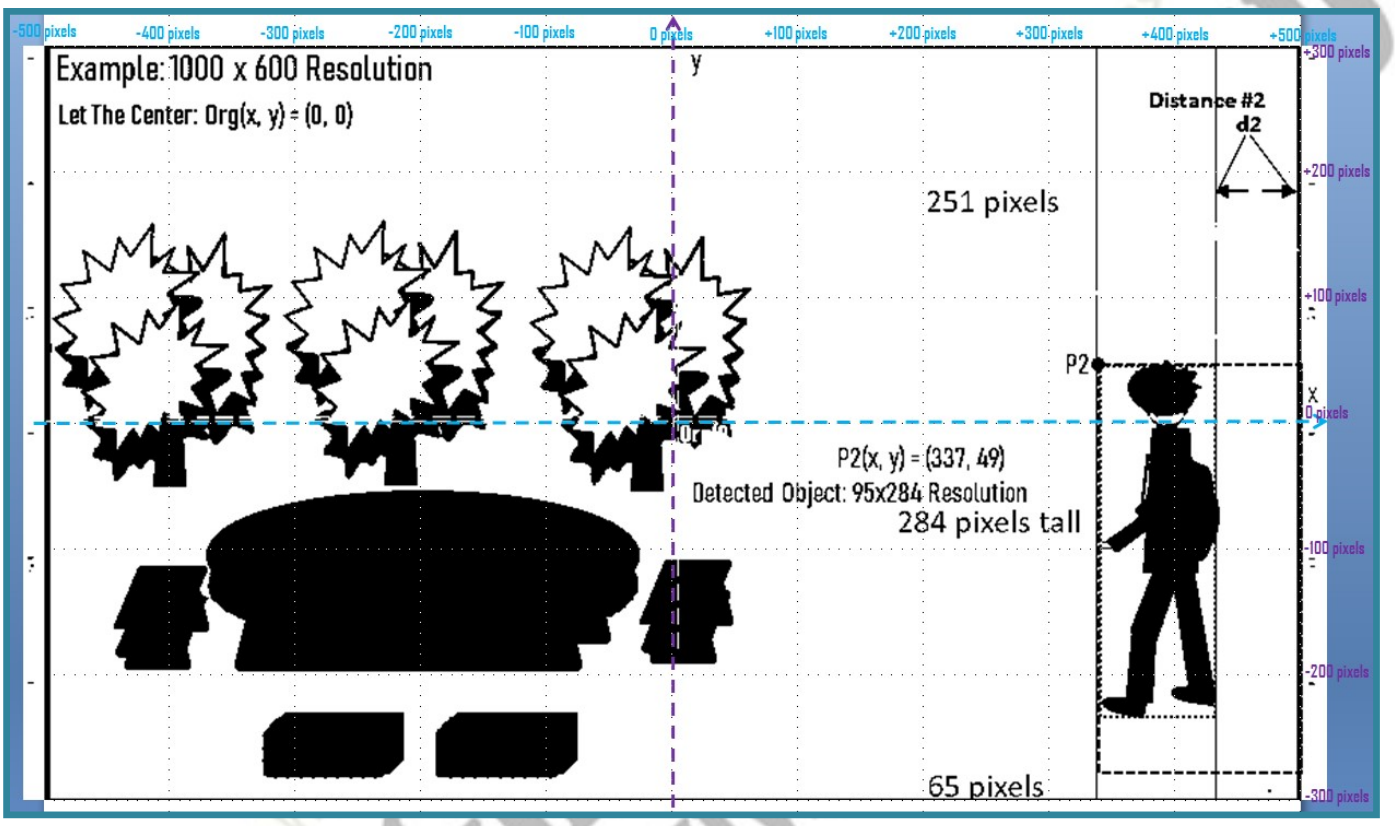

Figure-8: Wall Security Camera System - Scanned Motion Image at Position P2

The same method scanning above, we can scan the capture mono-mode image in Figure-8 for position P2. Below are the steps from capturing a mono-mode image every 0.25 second in circular buffers and put the capture images in order of timestamp to compare and scan for the detected motion rectangle.

1. Capture and save image in monochrome mode (bmp) or raw mono mode every 0.25 second.
2. Follow the basic algorithm provided above to scan for the motion shape. The method of scanning should work for the motion object detect at the first place or at the later position by comparing pixels to pixels of line by line from the previous capture to the newer capture image.
3. From the above method applied for this figure, we have the motion in the rectangle 284 pixels height and 95 pixels width at the position P2(337, 49) from the origin at the center; and the

rectangle above the baseline 65 pixels. The position P2(337, 49) is about 58 pixels (X-axis) and 45 pixels (Y-axis) in closer distance to the center from position P1(395, 4).

4. Assume that the device has not yet identify the target after the first capture image. Let the motion rectangle shape be $R_m(w, h) = R_m(95, 284)$; where w is the width and h is the high of the motion rectangle. The suggestion motion Center Target Position **$P_c(x_c, y_c)$** formula was defined and repeat again,

   $P_c(x_c, y_c) = P_n(x_n, y_n) + R_m(w/2, -h/3) = P_n(x_n + w/2, Y_n - h/3)$;

   Then from the figure above, we have $P_c(337 + 95/2, 49 – 284/3) = P_c(384.5, –45.7) = P_c(385, –46)$;

   Where x = +385 pixels in x-axis, and y = –46 pixels in y-axis from the center origin of the capture image.

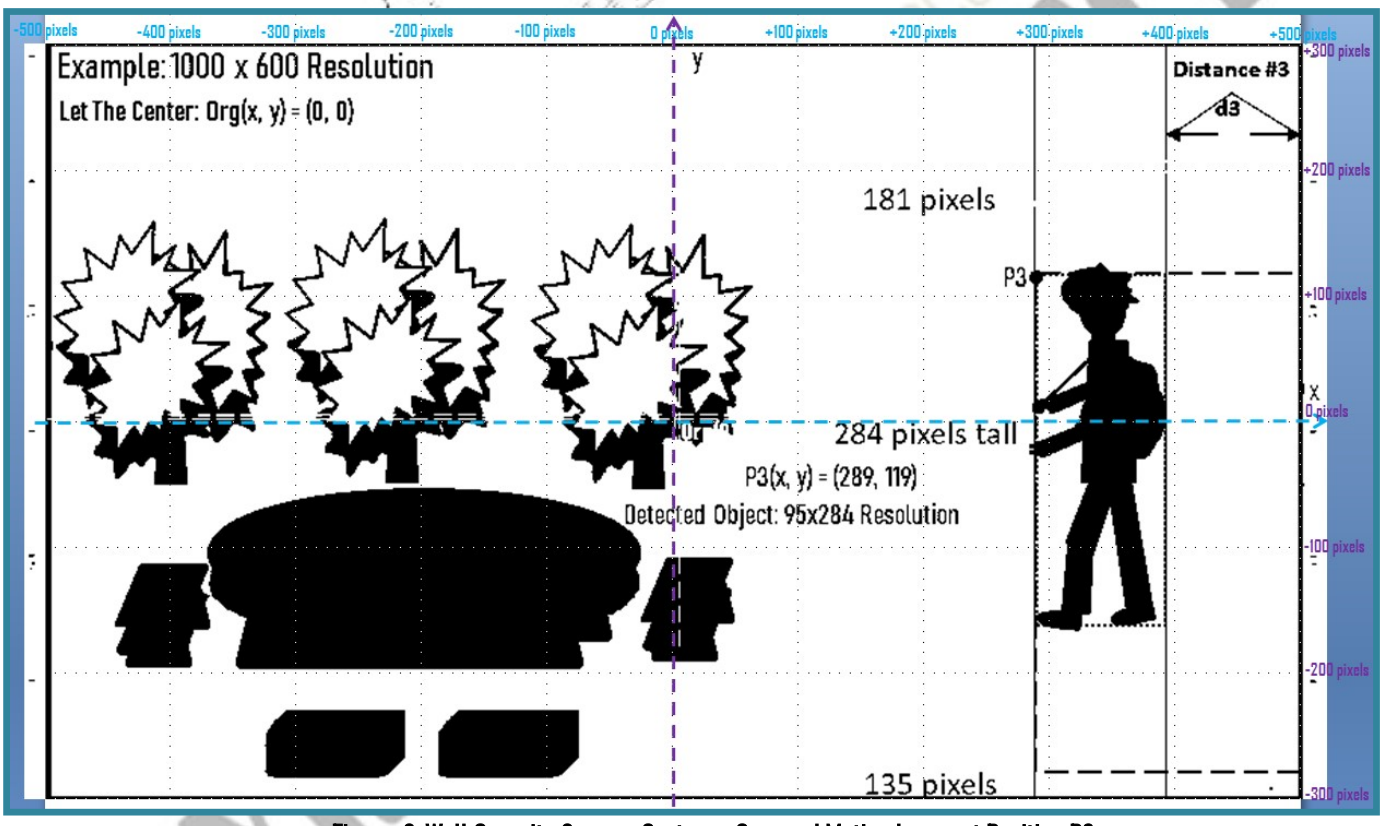

Figure-9: Wall Security Camera System - Scanned Motion Image at Position P3

The same method scanning above, we can scan the capture mono-mode image shown in Figure-9 for position P3. Below are the steps from capturing a mono-mode image every 0.25 second in circular buffers and put the capture images in order of timestamp to compare to scan for the detected motion rectangle.

1. Capture and save image in monochrome mode (bmp) or raw mono mode every 0.25 second.

2. Follow the basic algorithm provided above to scan for the motion shape. The method of scanning should work for the motion object detecting at the first place or at the later position by comparing pixels to pixels of line by line from the previous capture to the newer capture image.
3. From the above method applied for this figure, we have the motion in the rectangle 284 pixels height and 95 pixels width at the position P3(289, 119) from the origin at the center; and the rectangle above the baseline 135 pixels.
4. Assume that the camera has not yet moved or followed the target after the first capture image. Let the motion rectangle shape be $R_m(w, h) = R_m(95, 284)$; where w is the width and h is the high of the motion rectangle. The suggestion motion Center Target Position **$P_c(x_c, y_c)$** formula was defined and repeat again,

   $P_c(x_c, y_c) = P_n(x_n, y_n) + R_m(w/2, -h/3) = P_n(x_n + w/2, Y_n - h/3)$;

   Then from the figure above, we have $P_c(289 + 95/2, 119 – 284/3) = P_c(336.5, 24.3) = P_c(337, 24)$;

   Where x = +337 pixels in x-axis, and y = +24 pixels in y-axis from the center origin of the capture image.

The above examples show the steps to find the motion object in 3 different positions which can be scanned pixel by pixel of one image to another to find out the motion rectangle. This would be good enough to trigger motion alert as quickly as possible to detect motion during recording video files. The capture photo frames from the motion recording video at the moment of detecting can be put together and send to the Camera Viewer or forward to the online account to notify the users with the mobile app.

Wall Security Camera Viewer Software Requirements

When the Wall Security Camera Viewer detects motion object, and the device recognizes the motion rectangle from the above basic scanning algorithm, then this photo frame and every ¼ second photo frames will be sent to the Camera Hostspot if this setup is available. The Wall Security Camera Viewer only needs to send motion alert photos and video files during motion alert to Camera Hostspot; and the most important job is to store all the recorded video and alert photo files to local storage as provided by the external memory card. The Wall Security Camera Viewer will record the motion video and trigger alert sound with red LED flashing. All recording video and alert photos files should be stored in year/month/day folder, and the filename should be appended with timestamp for better sorting and viewing. The recording video files can be cut off to 5, 10 or 15 minutes each file for easy linking back with the alert photos that have been saved with timestamps.

- The Wall Security Camera Viewer should come with USB adapters to connect mouse and keyboard directly to allow the user setting up the camera connection to this camera viewer. The firmware of the Wall Security Camera Viewer should be able to display the current camera view image and allow the user to set the alert zones or areas of interest at anytime.

- The Wall Security Camera Viewer is not needed to connect to the Camera Hostspot if the connected camera has wireless connection and already has wireless connection setup to the Camera Hostspot. However, this is the user's choice; the user can have a chance to connect both camera and the Wall Security Camera Viewer to the Camera Hostspot.
- The Wall Security Camera Viewer should support alert settings window timeframe during the day for every week; the users may choose to alert daytime only for motion alert and with an option to set alert with sounds or no sounds during the days of the week.
- The Wall Security Camera Viewer should support alert with Gradually Reduce Notification Rule to reduce the alert notification constantly when the owners, guests or motion objects stay around for a long period of time. The Gradually Reduce Notification Rule which can be GRN(1, 3, 5, 10, 15, 30; minutes rule); which means the rule to reduce the notification from the 1st time of 1 minute, then 2nd time delays of notification to 3 minutes, then 3rd time delays of notification to 5 minutes, etc… until delays of notification to 30 minutes and stay with 30 minutes notification when the motion still around constantly. When the motion is completely out of the detected area, then this rule will be reset, and the notification is back to normal mode of notification.

Camera Hostspot Software Requirements

The Camera Hostspot allows the users to scan and add cameras and Wall Security Camera Viewer. The Camera Hostspot will allocate one folder for each Wall Security Camera Viewer and each folder for camera device. Each folder will have 2 subfolders, one for video recording files and another folder for motion capture photos. The video recording files can be in pool before completely every 1 minute splitting files before sending to online storage, while the motion capture photos can be scanned quickly and streaming together in small junk of motion photo frames which was ripped off from the motion video every ¼ of a second. The Camera Hostspot can also use the same basic motion detection algorithm described above for the Wall Security Camera System.

- Record and save all video files to the local storage; only forward or send motion alert photos and video files to online storage or user's secured Cloud OS account when the Cloud OS is ready for use.
- For Wall Security Camera Viewer, during the setup, the system should ask the user to send only the motion alert photos and video files to online account. The Camera Hostspot can identify the motion alert photos and video files from the Wall Security Camera Viewer by the motion detected photos sent from the Wall Security Camera. When the Camera Hostspot receives the detected motion alert photos frames sending from the Wall Security Camera Viewer, the Camera Hostspot should prepare and forward these motion alert photo files to online account as quick as possible; there are the alert photos and video files are already known as the motion alerts. Setting up the Wall Security Camera Viewer to send motion alerts and video files to the Camera Hostspot is recommended when the camera is direct connected (wire connection) to the Wall Security

Camera Viewer or the camera connected to the Wall Security Camera Viewer is not yet or not able to connect to the Hostspot wirelessly.

- The Camera Hostspot should display current date time and the alert statistic as shown in Figure-5 above with the suggested format, number of alerts per defined hours “1/1h 2/6h 5/24h”. With this format display, the users can easily recognize number of alerts recently within an hour or total alerts for entire day of 24 hours.
- The Camera Hostspot should support custom alert motion within interest areas or zones to detect motion for each camera, and these steps can be performed with mouse, keyboard and the external monitor which allow the users to draw of select the interest areas for detecting zones for each camera.
- All the setup, configuration for the connected cameras are done at the Camera Hostspot with supporting of the external monitor, mouse and keyboard. The mobile camera app can just be the app to view the cameras in motion alerts when get the notifications and can view the history of motion recorded video files remotely.
- The Camera Hostspot should also apply the Gradually Reduce Notification Rule which can be GRN(1, 3, 5, 10, 15, 30; minutes rule); as mentioned above for the Wall Security Camera Viewer.

The Camera Hostspot should support enough RAM memory to handle video and photos temporary store before forwarding to online storage or to user’s secured Cloud OS account when Cloud OS account is setup. The Camera Hostspot would support external memory card to store the recording files locally using circular recording video files within the memory card size without worrying out of memory storage. The video recording files should be in year/month/date and the filename appends with timestamp for better sorting and viewing.

Video Recording Files via Mobile Application

The Mobile Security Camera app should display alert statistic as shown in Figure-10 below with the format suggested, number alerts per defined hours “1/1h 2/6h 5/24h”. Where ‘1/1h’ is 1 alert within last hour, ‘2/6h’ is 2 alerts within last 6 hours, and ‘5/24h’ is 5 alerts total for 24 hours. This way the users can easily recognize there are total of 5 alerts for entire day 24 hours, 2 alerts for the last 6 hours, and 1 alert recently and realize which alerts are already checked.

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Wall Security Camera System

Figure-10: Wall Security Camera System – Wall Security Camera App

The video recording files can be viewed in a common standard mobile app as shown in Figure-10 below, which can view video files online storage on user's account. With the current hacked technology of internet and networking, there is no way to prevent the unknown user's login into your account online and view your recording video files. The **Cloud OS invention** was invented and submitted for patent on 2021/10/02 to prevent hacking; the Cloud OS is always running to protect user's account and waiting for the user to login with **high secured 4K encryption authentication** and high secured data transfer with dynamic protocol and high secured protection with single user per account. Currently, we have data in cloud but the strangers can login without notifying because the computer OS is running locally and not protected for the users; the user's data in cloud is not connected with user's personal computer OS. Cloud OS is in cloud and running on Cloud OS server machines in **Cloud OS Data Topology Sites** without mouse, without keyboard and without monitor to prevent hacking right at the topology. Currently, the data in cloud is stored in "Data Center" underground buildings or could be in large buildings where people can be

in and out with keyboard, mouse and monitors provided. The Cloud OS will use **Neighbor-to-Neighbors routing technology** when a neighbor server machine is gone missing or unknown neighbor server machine is added; the Cloud OS networking will alert and reject communicating with the unknown server. The Cloud OS will be the promise for the future of World Computing Infrastructure Modern for entire world. We then have the secured internet or WeWeb without worrying of hackers viewing our own data and video recording files in Cloud OS account.

Cameras Layout Recommendation

The Wall Security Camera viewer shows in Figure-11 can be hanged on wall in a room with or without wireless, and we can see the outside view at anytime without having to open mobile app to check and view and without having to open the windows or the door to check for any intruders. This is very helpful and prevent dangerous. This Wall Security Camera Viewer also helpful when we are in the private meeting room and can able to view the outside without having a security personnel checking around the area of the private room.

Figure-11: Wall Security Camera System – Inside View Wall Camera Viewer

Figure-12 below shows a recommendation layout of Wall Security Camera Viewer in a bedroom for the best view from the main position on bed can able to view all the cameras round the house or the

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bedroom without having to open the mobile app or standup to check for the motions. The figure shows 3 cameras that connected to 3 Wall Security Camera Viewers with constant recording and displaying on the screens. The house is more secured with the Wall Security Camera Viewers.

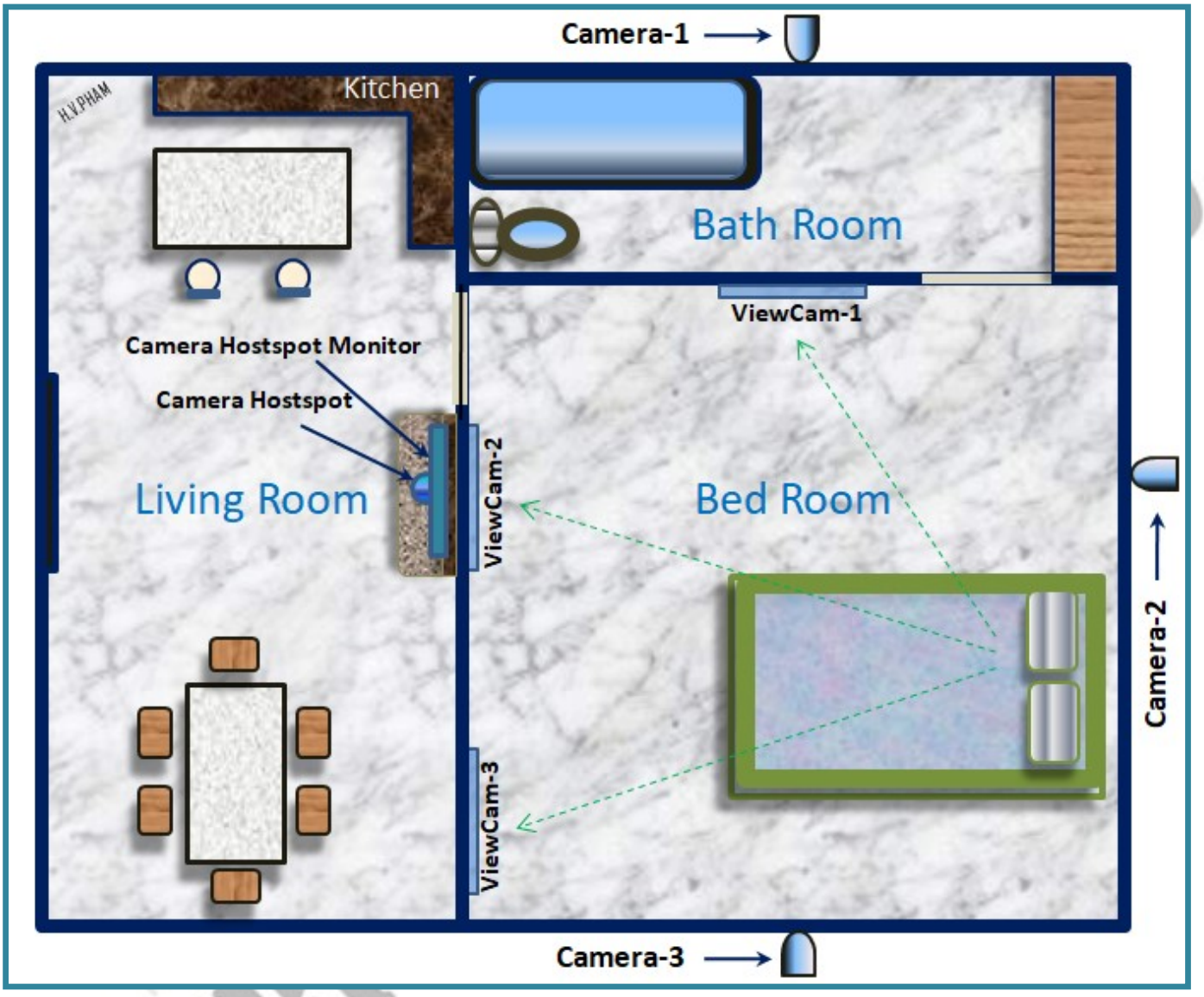

Figure-12: Wall Security Camera System – Recommended Layout

Conclusion

The Wall Security Camera System is invented with State of The Art in mind to provide our lives more secured in many dangerous cases to instantly view and monitor outside views of the living rooms, bedrooms, offices, etc…, at anytime without having to open mobile camera app to check while the doors and the windows are closed and covered. This Wall Security Camera System is also intended to resolve the existing security camera system issues when the users have the camera online account to view their

motion events, but the video files could have been deleted by hackers, and the lagging issues of delaying video notifications. This is great security camera that could be used in a closed office or a closed room to monitor for any motion object while working in office or sleeping in the bedroom. The Wall Security Camera System is the great security camera system which provides directly and constantly monitoring outside views at anytime while seating or working inside the rooms.

References

1. The invention "**New Way to Protect WiFi Network from Hackers**" which was submitted on 2021/07/01 with the **U.S. Patent number 29/788,607** with the **Trademark Serial Number 90795366**. For more detail and about this invention and my other inventions, please visit my website, www.TheCloudOSCenter.com ;
2. For Auto following Motion Security Camera to support better for a great Security Camera System. Below is a figure from my other invention "**Auto following Motion Security Camera**" which was invented the same time with this invention.

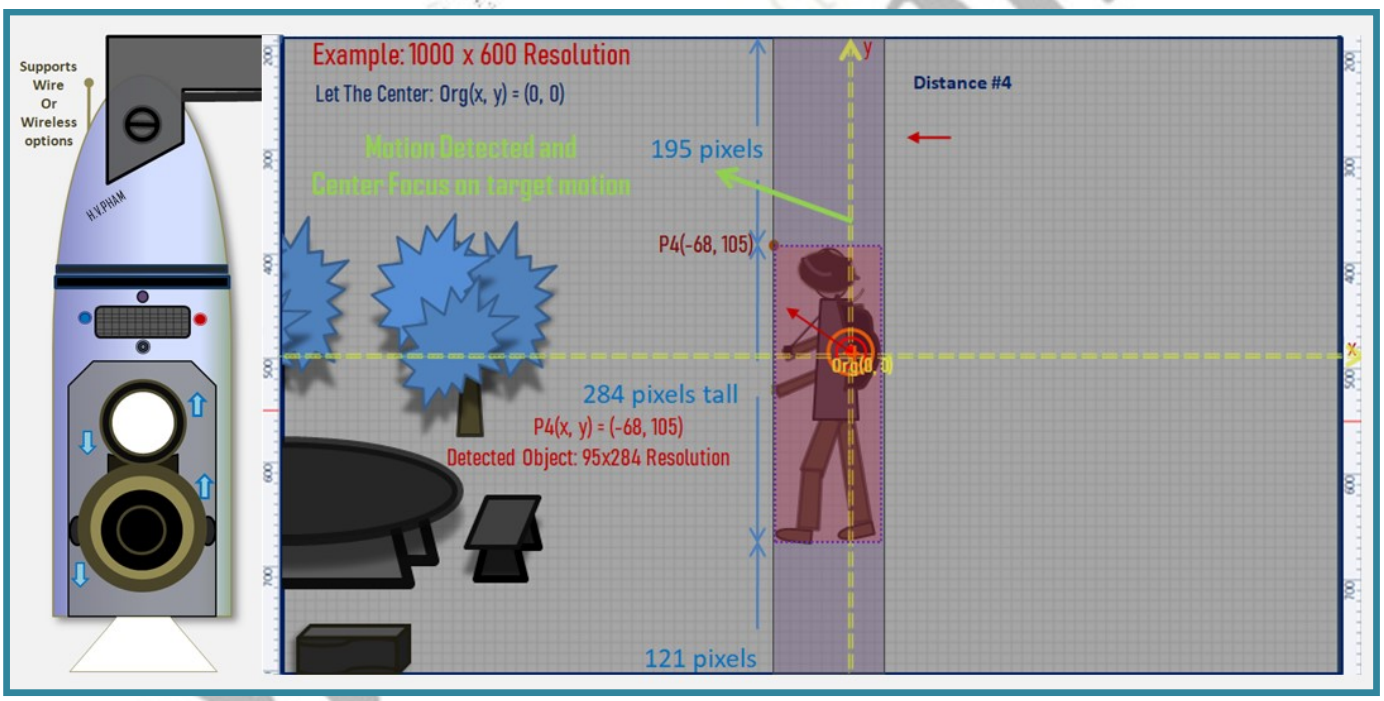

Figure-R1: Auto Following Motion Security Camera - Overview References

3. There are more security issues to concern in real life. I have the website www.ThePatrolCircle.com which lists the concept of Drone in patrol circle to secure the building or point of interest by drone flying around in circle watching and alert for any motion within the area circle using my invention "**THE LPS – Local Positioning System**" with **U.S. Patent Number PCT/US21/72562** and International **Patent Number PCT/IB2021/000949** which was submitted on 2021/11/23. This invention is also listed on my main business website www.TheCloudOSCenter.com.

4. A sample setup showing in Figure-R2 below using existing personal computer to demonstrate a good use case to view outside the house instantly and constantly with video recording while seating in the room without having to open camera mobile app to view.

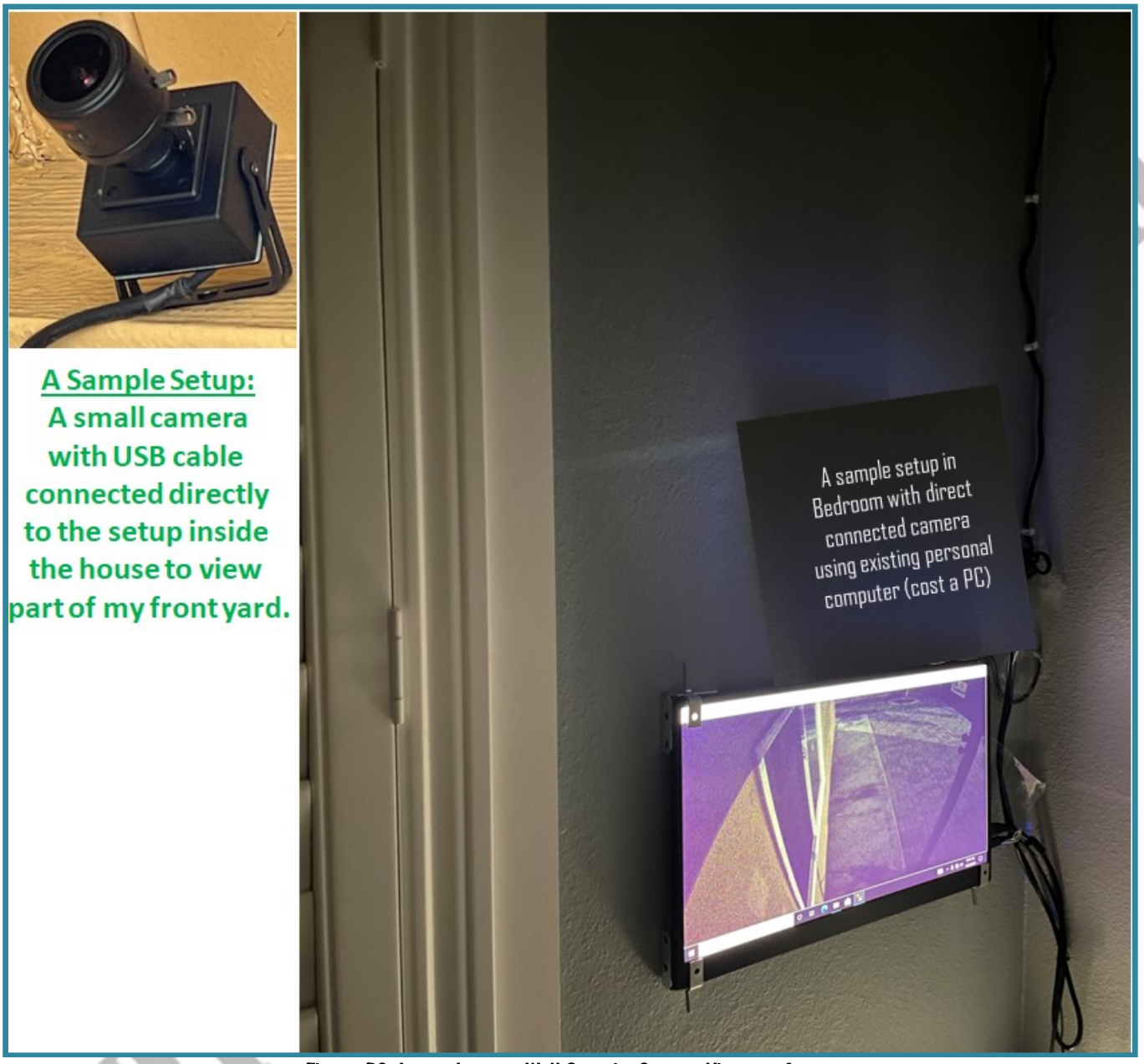

Figure-R2: A sample setup Wall Security Camera Viewer reference