

Auto Following Motion Security Camera - Claim

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The purpose of the 'Auto Following Motion Security Camera' invention is intended to solve the existing security camera problems. We live in the world with high technology, and the safety and security daily is more concerned, more demand and critical in many cases. This security camera would provide automatically following and keeping the motion targets on the center of the images or screens with sensors detecting initial blind spots with natural light beams and sound alerts; the natural light beams work as the motion security lights, provide bright video images and turn the screen camera viewers brighter at night for attention instead of infrared lights. The camera can rotate 360° degrees plus vertical tilting of the camera which is connected to a vertical tilter. This claim shows the overview figure of this invention which was submitted on 2024/01/31 with U.S. PCT/US24/13660 and International PCT/IB2024/000177 Patent Numbers, which can be used as the representing invention drawing to print on the patent frame and the following functions and features of this invention.

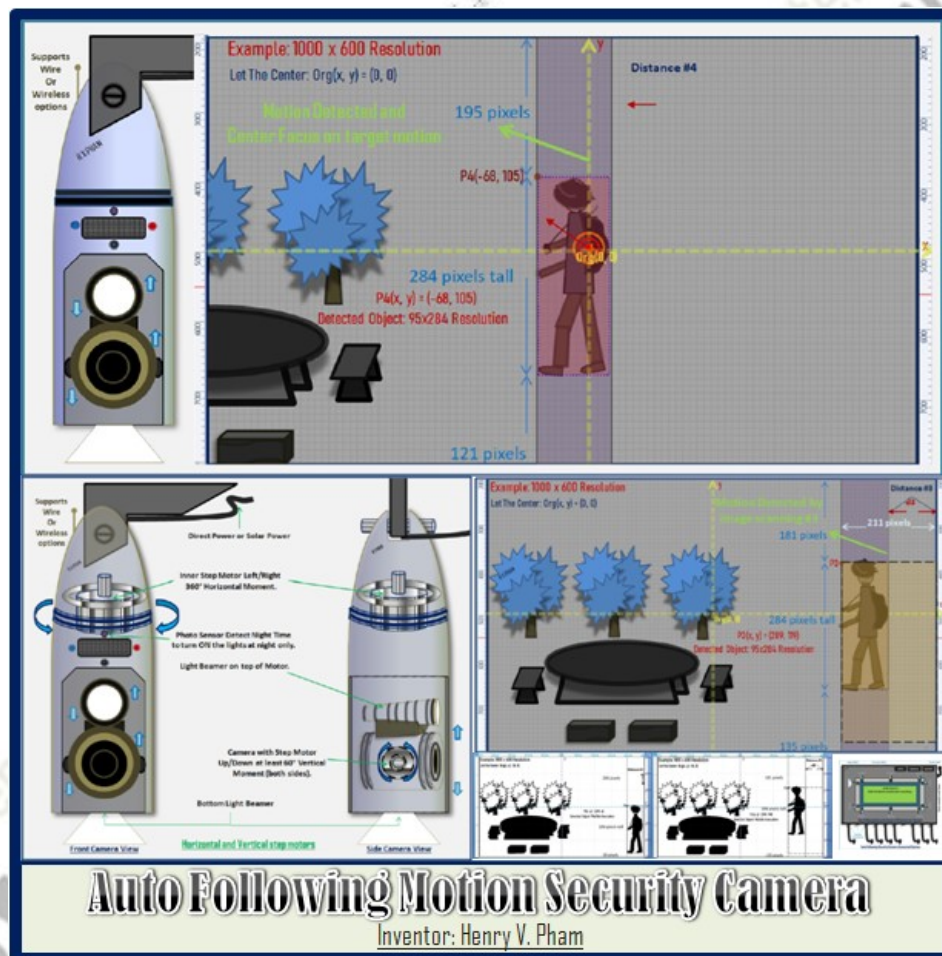


Figure-A: Auto Following Motion Security Camera -- Overview

1. The main apparatus for the Auto Following Motion Security Camera, comprising:

The Auto Following Motion Security Camera would support 360° degrees horizontal rotating with up and down turning in 60° degrees vertical viewing directions and automatically follow and keep the motion targets on the center with natural light beams and sound alerts. Wherein, the Motion Scanning Algorithm would keep the motion target on center images or screens with memory chip with enough

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memory to capture and save in memory buffer for video in monochrome BMP mode every 1/4 of a second for at least 15 seconds with circular buffering techniques to scan and identify motion target shape; the natural light beams provide bright video images and turn the screen camera viewers brighter at night for attention instead of infrared lights; the camera would be operated with any security camera systems with or without wireless connection with optional support of WPS button for secured wireless connection with convenience; the Camera Hostspot that can host all the local cameras and store recorded videos before sending the videos to the WiFi Router for Internet Access, which was introduced in the 'Wall Security Camera System' would be perfect for wireless cameras; the camera would come with microphone and speaker for 2-way communication and for alert sounds customization.

2. The main operational functions apparatus for the Auto Following Motion Security Camera, comprising:

The Auto Following Motion Security Camera would automatically turn the camera toward the motion target with the light beams on at night time and play configured sound alert when detecting a motion, and the camera viewers or camera host would be received and recorded the motion videos with the motion target always shows at the center of the images or screens. Wherein, the camera motion sensors would detect a motion target, and it would scan and validate the target within a second with at least 4 samplings per second then trigger the camera motors to point the camera lens and front light beam to the correct position of the target; the natural lights would provide the video images brighter compare to infrared lights plus the bottom light beam and works as motion security lights to provide the bright ground view. The Auto Following Motion Security Camera would work with any existing security camera system and would work perfectly well with the new "Wall Security Camera System" invention which was submitted on 2024/01/31 with U.S. PCT/US24/13663 and International PCT/IB2024/000096 Patent Numbers.

3. The Camera Hardware layout and requirement apparatus of claim 1 & 2, comprising:

The Camera Hardware would come with internal memory chip to capture motion, step motors to support the camera rotate around, up and down with sensors and light beams. Wherein, the memory chip is temporary memory which enough to store some motions during to scan for the motion target; the step motor on top part of the camera would be used to turn the camera body around up to 360° degrees; the motor or mechanical at the bottom which holds the camera lens would be used to tilt the camera lens up and down with 60° degrees views as recommended; the direct light beams would be built on top of the camera lens and the bottom light beam would be beam straight down to light up the bottom view when motion is detected; one motion sensor in front of the camera to detect front forward motion and can have 2 or more sensors on the sides to detect initial motion position to turn the camera to; the microphone, speaker with buttons would be built on the top front panel to support customize alert sounds recording.

4. The Motion Scanning Software and Algorithm apparatus of claim 1 & 2, further comprising:

The camera would be built with Firmware/Software to scan the image to detect motion target and turn the camera and light beam to the motion target correctly. Wherein, The camera has enough memory to capture and save low video in resolution, in monochrome BMP image mode every 1/4 of a second for at least 15 seconds with circular buffering techniques; the capture images would be layout in

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rectangle with center origin of x and y coordinates. The basic scanning algorithm that described in the original invention document to scan horizontal and vertical direction pixel to pixel comparison from the previous capture motion image to a current moment of motion object; the camera software would check and validate the motion for big or small, consistent vibrating by winds or moving target and find the best position of the target to point the camera or light beam to; The suggestion motion Center Target Position $P_c(x_c, y_c)$ formula for this position is, $P_c(x_c, y_c) = P_n(x_n, y_n) + R_m(w/2, -h/3) = P_n(x_n + w/2, y_n - h/3)$; This formula should work for the motion comes from any direction with the origin at the center image with x and y coordinates recommended. This security camera can be programmed to support automatic and manual mode; the manual mode would be used for security team to monitor certain spots on the surround areas when needed.

5. The Camera connections apparatus of claim 1 & 2, further comprising:

The Camera connections would be either with wire or wireless communication connections to the camera viewers, Camera Hostspot or directly to the camera systems, and the power can be direct electrical power or with solar panels. Wherein, the wireless connection settings can be used by UI application or via WPS button with 2-Press Connection Confirmation that mentioned in the 'Wall Security Camera System' invention document for secured purposes plus the Press-and-Scan to have access which was introduced in the 'WiFi[+]Secured' invention which was first submitted on 2021/07/01 with U.S. Only Patent Number 29/788,607; then re-submitted on 2024/02/27 with U.S. PCT/US24/17533 and International PCT/IB2024/000110 Patent Numbers; the cameras can be programmed with auto following motion or manually control which can keep the motion target on center screen in auto mode.

6. The Security Cameras Layout and Installation recommendation apparatus of the Auto Following Motion Security Camera, comprising:

The Security Cameras could be layout with one or two layers to cover entire property or point of interest and recommended to install with Camera Hostspot and Cameras Control System. Wherein, Camera Hostspot would host all the connected cameras to record videos on the local memory before sending videos to the online accounts storage via WiFi Routers or Wireless Base Hostspots; the Cameras Control System would be used for the security team to monitor and control the cameras manually; the cameras can be installed in 2 security levels for large properties or manufacturers with inner cameras installed around the properties watching outward and the outer cameras installed on the border of fence watching inward to cover all the blind spots around the large properties.

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