

Under Vehicle Scanning System

The Future is 3D



NuvoScan™ – 3D

Automated Under Vehicle Scanning System

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Why do we need UVSS ?

In today's world security has become a major concern for everybody. Places of importance/mass gathering like railway stations, airports, government offices, IT Parks, residential societies etc to name a few, are prime targets for terrorist attacks. Attackers and defenders always continue security game of cat and mouse. The only winning criteria is pace of innovation. By taking better security measures and using systems equipped with latest technology premises and precious lives can be secured.

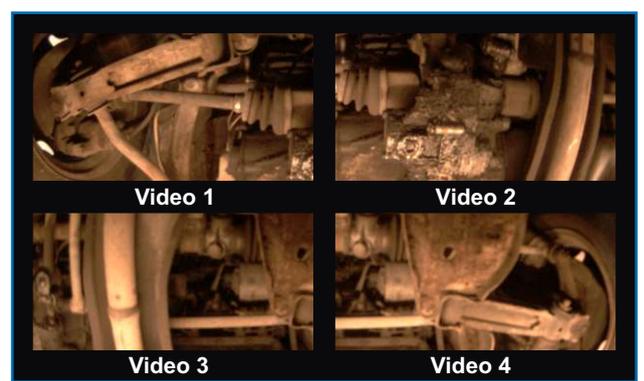
Securing premises involves thorough checking of individuals and vehicles entering the premise. Using traditional methods for vehicle inspection has been observed to be very cumbersome and error prone which often defeats the whole purpose of their installation. There is a pressing need of high-tech ultra modern solutions which can assist the security personnel in keeping the premises secured.

Traditional UVSS: Presented here is the taxonomy of commonly used methods for premise security:

➤ **Mirror based scanners:** This is the least expensive and most widely used method to safeguard premises in developing countries. However, a large portion of the vehicle's underside is often not visible due to occlusion / physical device constraints. Also an average partial inspection usually takes 40-60 seconds, at this rate vehicle inspection is not practical in most of the premise traffic conditions.

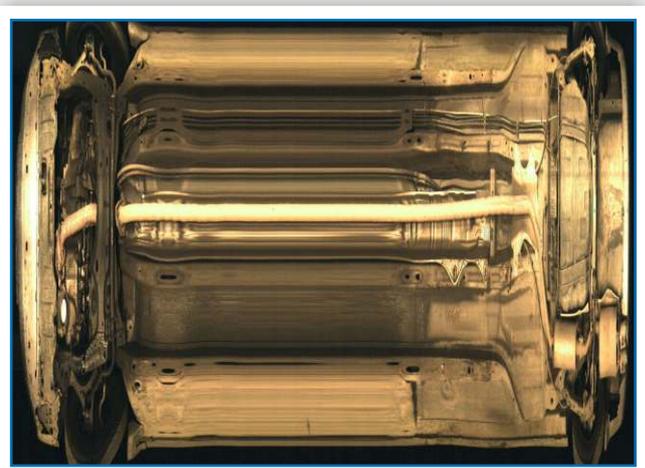


➤ **Video based scanners:** These are low cost scanners, providing output in the form of videos. This device produces multiple parallel videos for each vehicle. Afterwards, operator can check these videos to find any suspicious object attached to vehicle underbelly. Usually videos are captured at 25 fps (approx) and there are about 4 or more such videos corresponding to one vehicle underside, so now operator is supposed to find a suspicious object in 25 frames within one second that too in multiple videos, which is not practical.

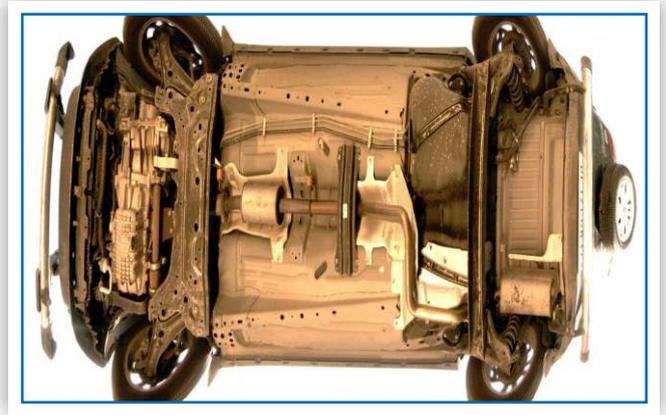


➤ **Image based SingleView scanners:**

- **LineScan based scanners:** These scanners use LineScan cameras to produce SingleView high-resolution composite image of a vehicle which is easy to investigate for foreign objects. As a policy, vehicle should run almost at a constant speed and should not stop over these scanner to avoid deformations in produced image. Ensuring a constant speed vehicle motion is very difficult for system operators; plus vehicles stop over the scanning unit during queue formation or rush-hour situations and hence pose significant constraints for practical system operation.



- **AreaScan based scanners:** These scanners also produces SingleView high-resolution image. AreaScan mosaicing technology enables these scanners to overcome speed/movement related issues of the LineScan systems and makes it a truly usable system. As camera is scanning vehicle underbelly only from one angle which means it will only produce one view of underside from that particular angle. Viewing a vehicle from one angle often suffers from occlusion related issues and it is almost impossible to see hard to view areas from just one angle.



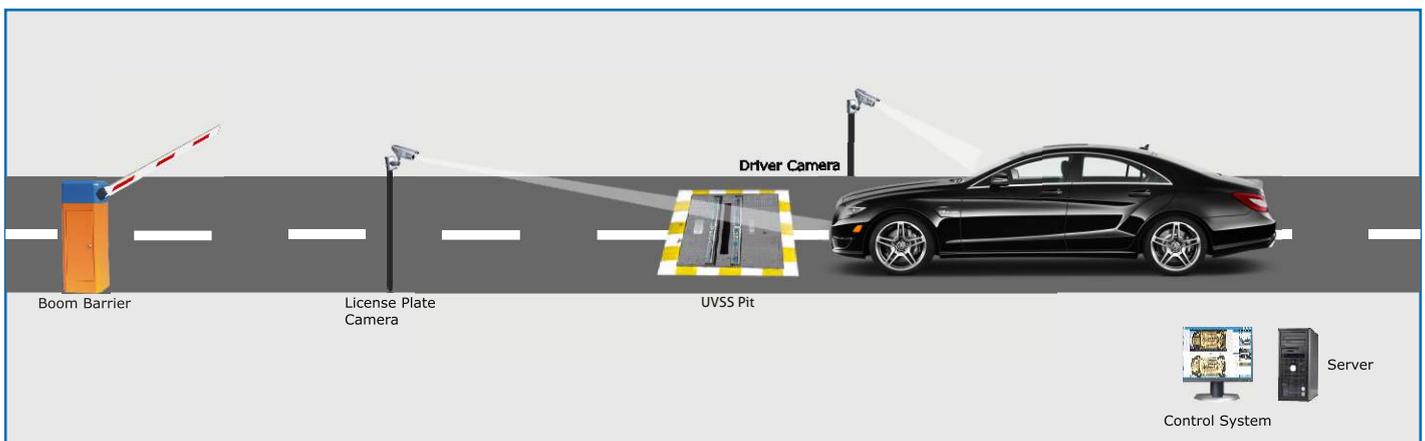
Technology Shift

Technology has taken giant strides over the last few years, making possible new innovations in the area of security. 3D is one such technology shift which has found its place in many domains like health-care, printing, architecture, entertainment(VR) but security field is still in the initial phases of adopting this technology. X-Ray scanners are one main example in premises security domain which exploits dual view technology for extra visibility. Continuing our legacy of innovation and new technology adoption, we present our latest generation **NuvoScan-3D** which is powered by dual camera 3D technology; enabling it to solve problems which earlier generation under vehicle scanners fail to address.

3D UVSS:

NuvoScan-3D is an advanced automated 3D viewing Under Vehicle Scanning System based on the latest dual camera AreaScan imaging technology. It comes packed with some unique algorithms which enhances user experience many folds by exploring the 3D aspect of the vehicle underbelly. In addition to the 3D visualization, one area where the new technology shines is in bringing forth hereto hidden/partially-occluded objects by showing dual view of the vehicle which are not visible in the earlier generation SingleView systems.

NuvoScan-3D provides an optimum solution to scan, inspect and digitally document the under side of the vehicles. The system is equipped with dual high-resolution cameras that helps in visualizing the 3D color view of the underside of any vehicle passing over the scanner. Hard-to-view areas are easily scanned with this dual camera setup within fraction of seconds. Two important features available in the system are 'real time 3D animation' by generating novel views of the underside which allows operator to visualize the objects in 3D and 'compare image' which automatically finds an image from database of reference vehicles which helps the security personnel in identifying potential threat objects in vehicle underbelly.



Salient features:

- Dual imaging feature from left and right view in order to identify any possible threat
- High resolution color left and right composite images of the vehicle's underside
- Novel view generation feature to see real life 3D visualization of the underside
- Hard-to-view/occluded areas can be viewed easily through **NuvoScan-3D** UVSS system
- Stop and Go image formation doesn't affect the image quality
- Dual LED array for better illumination
- Zoom facility upto 25x of the composite image to facilitate a closer view of niche areas
- Able to compare both (left and right) views with the help of license plate/type database
- All weather proof IP-67 certified underground enclosures
- Air cleaner mechanism for all weather operation
- Multilingual Graphical User Interface (GUI)
- CE, ISO certified system
- Automated License Plate Reader (Optional)
- Driver Image Capture Module (Optional)
- Automated Image Comparison Feature (Optional)
- Integration with other systems like Boom Barrier, Tyre Killer, Bollard (Optional)

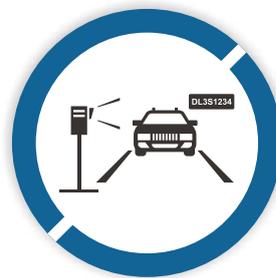
Product Portfolio



X-RAY



RLVD



ANPR



SPEED



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