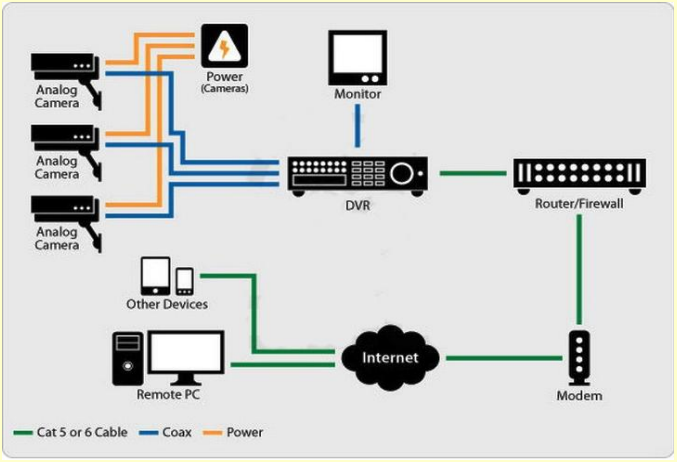
GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS

SURVEILLANCE SYSTEM [CCTV]



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Indian Railways
Centre for Advanced Maintenance Technology

Contact person: **Director (S & T)**
Indian Railways Centre for Advanced Maintenance Technology
Maharajpur, GWALIOR (M.P.) 474 005
✆: 0751-2470185, FAX: 0751-2470841 e-mail: dirsntcamtech@gmail.com

SURVEILLANCE SYSTEM [CCTV]

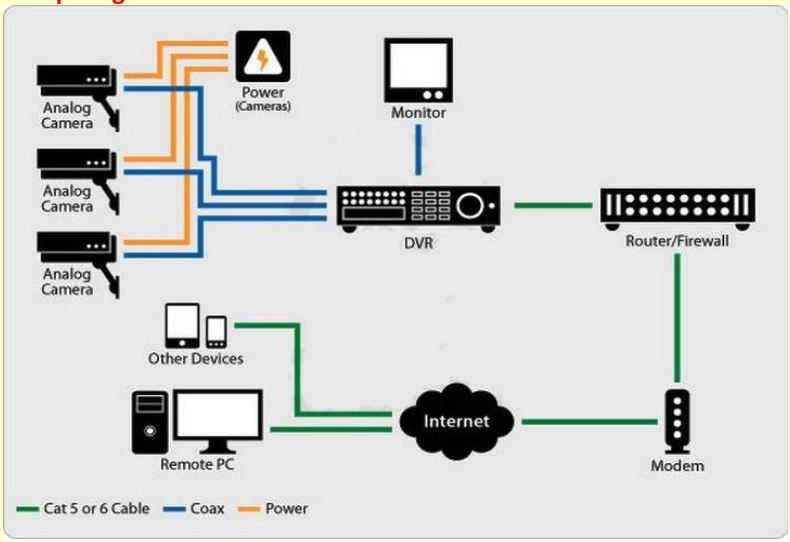
In Indian Railway, Video Surveillance System is an important security requirement to be provided at waiting hall, railway yards, workshops, reservation counter, parking area, main entrance/ exit, platforms, foot over bridges etc. of railway station and others railway establishments to capture images of commuters & public and to carry out analysis.

In this pamphlet surveillance system using analog camera is described. The surveillance system using IP camera will be covered in separate Publication.

REQUIREMENT FOR INSTALLATION OF SURVEILLANCE CCTV SYSTEM {As per Telecom Manual Para 6.4.1}

High Resolution Fixed Colour Camera, Digital Video Recorder 4/8/16/32-ch HD-SDI video input, Housing Arrangement for Camera & DVR, LCD/LED Flat Panel Display Monitor, Digital Keyboard, RG 11 armoured video cable, Armoured 3 core 1.5 sq. mm power cable, Armoured twisted pair shielded cable, Un-Interrupted Power Supply, UTP Cat-6 cable for Network etc.

Setup Diagram



Approximate required memory according to resolution of camera is given below:

Video Data Storage Space (Approximate Value, Single channel)			
S. No.	Resolution	FPS	Capacity in GB per Day
1	1 MegaPixels	25	11
2	1.3 MegaPixels	25	21
3	2 MegaPixels	25	32
4	3 MegaPixels	25	42
5	5 MegaPixels	25	74

CCTV System

Closed-circuit television (CCTV) System is the use of video cameras to transmit a signal to a specific, limited set of monitors. CCTV is often used for surveillance in areas which need security, such as banks, Railways, and airports or military installations.

CCTV Cameras

A security camera is used in surveillance to monitor public or private areas that need to be monitored for security reasons. Modern security cameras use closed-circuit television (CCTV) technology, which employs video cameras that transmit signals to a specific limited set of monitors.

Types of CCTV Cameras

1. Indoor Camera

Indoor Camera as its name suggests used for indoor security mechanism.

2. Outdoor Camera

Outdoor camera is used for outdoor places. They are mostly used for entry and exit points with limited night lighting. These Cameras have hard shell vandal-proof casings.

3. Dome Camera

Dome cameras are installed inside a dark dome and are designed in a way that they go unnoticed by visitors. These cameras can be rotated and tilted manually. Dome cameras are used in public places like railway stations, bus terminals, and other areas where there is a huge gathering of people.

4. Bullet Camera

Bullet cameras are placed inside Bullet shaped housing, and they are used in residential places as well as commercial places. They are small in size, have an integrated design and water-proof also.

5. Vandal Proof Camera

Vandal Proof cameras are used as outdoor security cameras. These cameras are sheltered within solid material and covered by a “hub” of break-proof glass which doesn’t affect the quality of the video. It is difficult to break these cameras and this makes them perfect for high security.

6. Hidden Camera

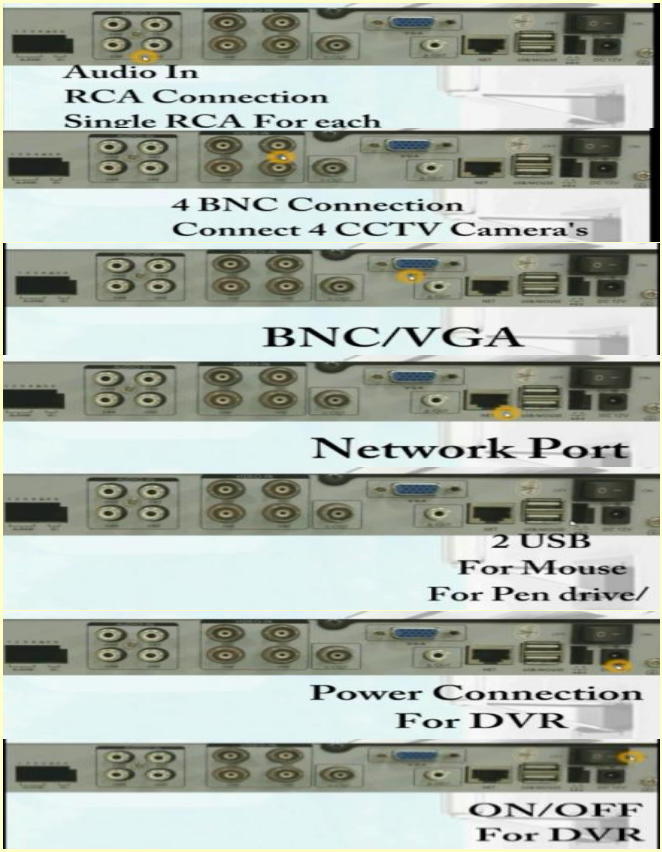
Hidden cameras are compact in size and are used for secret monitoring. They are usually installed in public places. Hidden cameras have a built-in recorder that records and broadcasts simultaneously.

7. Pan Tilt Zoom (PTZ) Camera

Pan-tilt-zoom camera offers the ability to view and zoom in all directions. We can even set the camera to automatically rotate to different fields of vision.

Digital Video Recorder (DVR)

Various ports of DVR back panel are shown in following figures



Connecting Surveillance DVR

1. Plug all cameras BNC video connectors into the DVR.

2. Now plug in power connectors for each camera cable into the power connection
3. Plug in the power connector for Surveillance DVR on the back DC 12 volts.
4. If connecting the DVR to the internet it can also plug in network cable to the network connector as marked on the back panel of DVR.
5. Now system is ready to connect a monitor to Surveillance System plug in VGA from the monitor to the DVR.
6. Now connect the DVR mouse located on the panel of the DVR.
7. Now turn on DVR by using the power on/off switch on the rear panel.

Surveillance system is now ready to use.
To get full screen size of any display, double click the mouse after keeping cursor on that display.

To view the display of specific day and time

Suppose we want the views of camera number7, installed at platform number 1, in front of main entrance, of date 12.05.2015.
Right click the mouse on the screen. Select SEARCH, Enter user name and Password and select OK.
A Screen display at top of Right hand side, select date 12 and month May. Now Select camera Number 7.
Screen also displays green line containing time 0 to 24 hrs. Select the time for which view has to be seen.
For view the current activities, Right click the screen.

Saving of Video Clips in Pen Drive from DVR

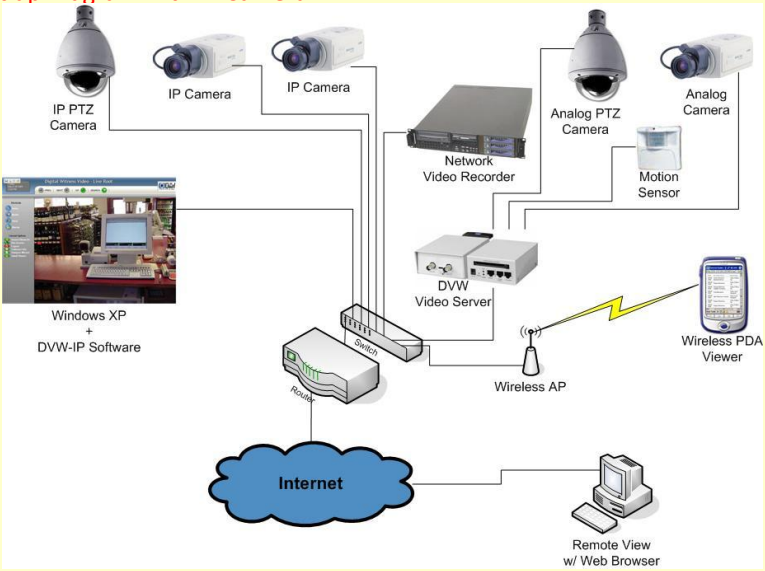
1. Insert Pen Drive in USB port of DVR
2. Right click mouse on screen of TV
3. Click on Search
4. You will be prompted to enter User Name & Password
5. Enter user name & pass word
6. Select the date for which video clips are required to save
7. Select the frame of camera to be recorded i.e. 1,4, 16
8. Select the channel numbers which are to be saved
9. Play video by click on time bar i.e. 0 to 24 hrs
10. Click on cut sign
11. Click on time hour digit & set appropriate time hours, minutes & Seconds (Start to end)
12. Click on start
13. After completion of saving click on ok

Important Instructions

1. Location of CCTV camera shall be jointly decided at the level of Divisional Telecom & commercial/RPF officers.
2. CCTV camera shall be procured as per RDSO Specifications.
3. OFC connectivity may be insured between OFC hut and CCTV camera Location.
4. The physical distance between OFC hut to CCTV camera location shall not be more than 50 meters in case of use of Ethernet cable. Necessary interface may be provided to maintain quality of outputs wherever required.
5. OFC cable/ Ethernet cable between OFC huts to CCTV camera location may be laid underground. If not feasible, outdoor cable shall be intact through HDPE pipe with proper joints.
6. Proper earthing with SPD shall be provided for each CCTV camera.
7. Gigabyte Managed switch with suitable standard rack shall be included where more than one CCTV camera required at a particular location.
8. Required power supply of equipments shall be provided through on-line UPS.
9. 20% spares of equipment shall be catered in the estimate.

10. The storage of CCTV camera footage and clipping of CCTV camera shall be under control of Commercial/Security department. They may provide any clipping to other agencies as per extant rule.
11. All cameras and switches shall be connected preferably through optical connectivity.
12. Fixed dome cameras shall be provided at the location of gathering such as platforms, waiting halls, concourse etc.
13. Fixed box camera shall be provided at the places of movement such as entry/exists, escalators, FOBs, staircases, ATVM, UTS/PRS counters etc.
14. PTZ cameras shall only be provided with disaster recovery facility. For that one of the servers shall be located at telecom premises of divisional headquarter.

Set up Diagram with IP Camera



DISCLAIMER :The information given in this pamphlet does not supersede any existing provisions laid down in Telecom Manual, Rly. Board and RDSO publications. This document is not statutory and instructions given in it are for the purpose of guidance only. If at any point contradiction is observed, then Telecom Manual, Rly. Board/RDSO guidelines or Zonal Rly. instructions may be followed.