ATD NORTHWEST

VIDEO INSTRUMENTATION AT WORK

ATD NORTHWEST GRADE CROSSING BACKGROUND & EXPERIENCE

Early in the year of 1983, Ken Kaylor, President of ATD Northwest, Inc. was demonstrating a newly developed high speed color video camera to officials at the China Lake Naval Weapons Center in California. The object of the demonstration was to observe the deployment of the guidance fins on a rocket as it was fired from the wing of a fighter plane. It was hoped that the project engineer would be able to review the data even before the plane returned to the ground. The demonstration was an outstanding success and the results were reported in the Los Angeles Times.

A short time later personnel from CALTRANS, the California Department of Transportation requested us to demonstrate the capability of this unique camera to stop the license plates of vehicles travelling in excess of 70 miles per hour. The transportation engineers who observed the demonstration were excited about the prospects which this new technology offered. ATD was contracted to perform a series of origin and destination and through-put license plate studies. We also accomplished the first successful tests with respect to photographing the occupants of vehicles travelling on HOV lanes. CALTRANS and other DOT organizations have continued to utilize these video techniques to acquire outstanding traffic data over the ensuing years.

The MTA Blue Line Intracity Transit Trains operating between Long Beach and Los Angeles were experiencing both vehicular and pedestrian accidents to an excessive degree. ATD was requested to monitor several sites on the line at different times throughout the year to determine the interaction between the trains and vehicular and pedestrian traffic. Portable pole mounted color time-lapse video systems were installed on poles observing some of the most controversial sites. The cameras were placed at opposing angles with respect to the intersection so as to observe traffic operating in all four directions with respect to the grade crossing. The systems were operated both night and day over a period of 48 hours in order to establish a baseline of activity before major changes were instituted at the sites. All vehicular and pedestrian traffic was displayed in a spread sheet format for careful analysis by the transit engineers.

We have participated in many long term intersection studies from Washington D.C. to Washington State since those early experiments. Cameras have been mounted to monitor the before and after effects of new barriers, new pavement markers, new signs and public relations campaigns. They have been installed at rural, suburban and urban sites. Some grade crossings have only one active track. Others have a number of tracks. If two or more tracks are involved, the interaction of the public with the second train as it approaches is of particular concern.

Our primary interest is to detect and monitor vehicular or pedestrian violations when a train or trains are approaching the grade crossing. A trigger alarm, generated from the train approach, is used to initiate a recording on a self-contained 24 hour time-lapse VCR. Time, date & location data is superimposed over the video image. The recording shuts down when the signal is deactivated. It is also possible to monitor a remote grade crossing site via the use of standard telephone lines. The images from color pole mounted video systems are transmitted to a special remote monitoring site where they are recorded on a bank of time-lapse video tape recorders. Thus, they may be reviewed and incidents recorded in a very rapid manner.

It is possible to mount two or more cameras on the same pole. One camera can be used to record the overall scene while one or two others may be utilized to record the license plates of vehicles which circumvent the barriers.

Sometimes one wants to monitor the entire traffic stream for the entire day. It is desirable to observe the traffic patterns when a train is not approaching as well as when a train is approaching. Depending upon the number of trains, It will require about six to eight hours to review the data and analyze any incidents which occur for each camera at each site.

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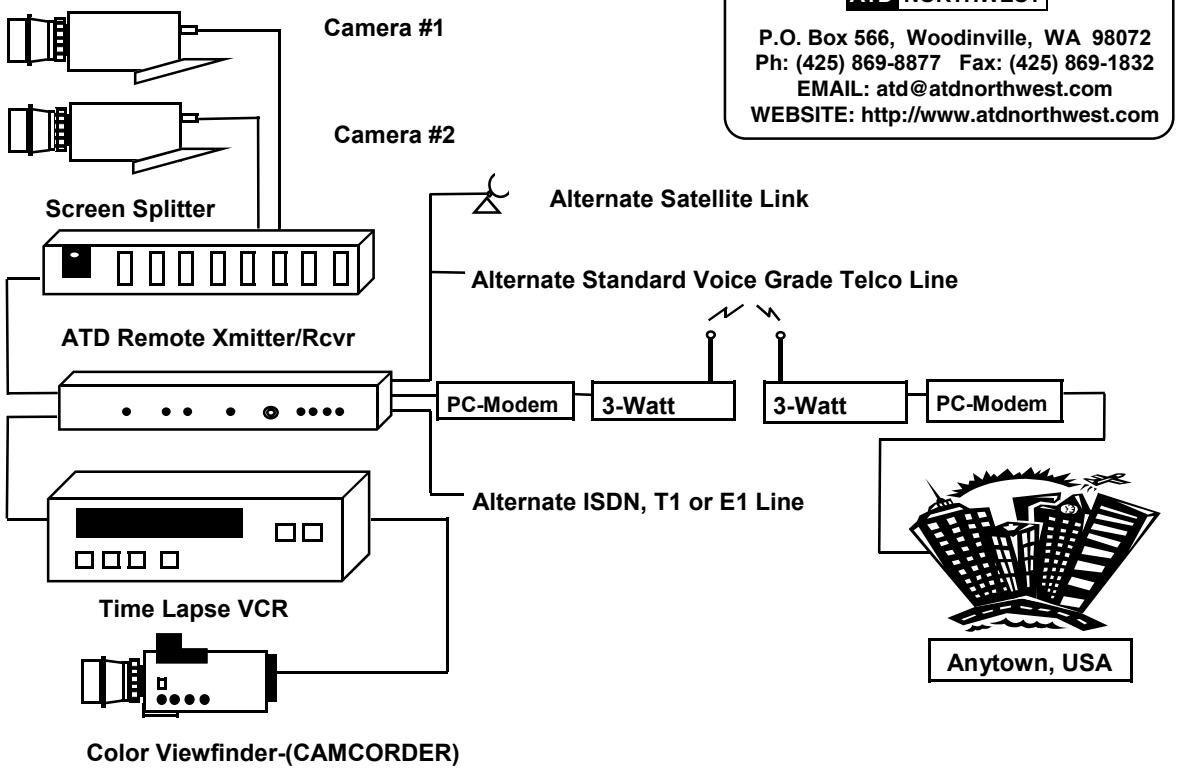
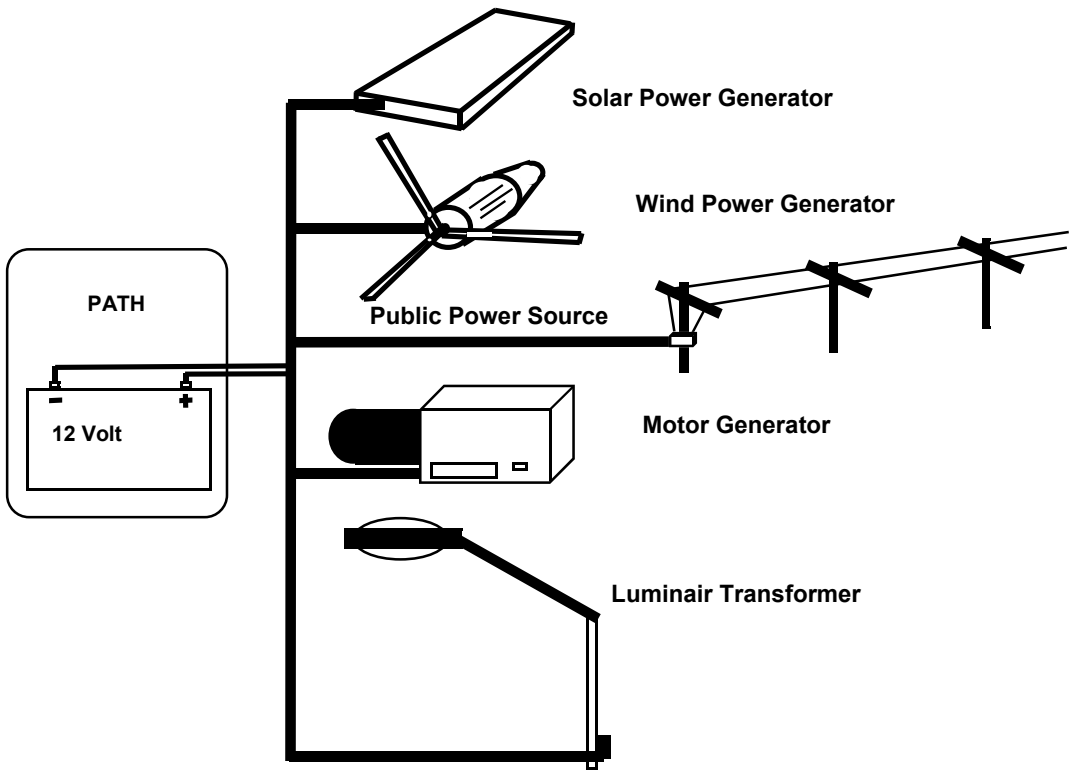


PATH (MARK II) Remote Viewing Video Block Diagram



PATH (MKII) ALTERNATE POWER SOURCES