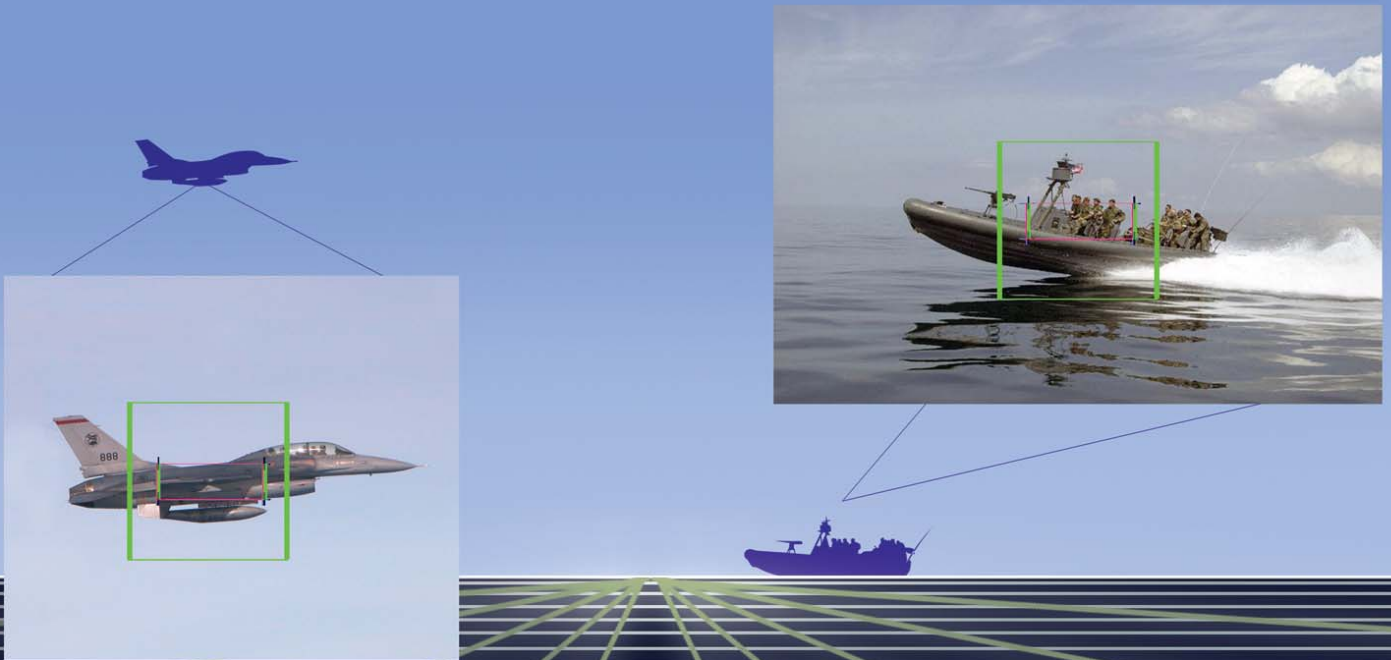




# PerceptiVU

Target Tracking • Pattern Recognition • Image Fusion • Machine Vision • Consulting Solutions

## ***A LEADER IN PROVIDING REAL-TIME TARGET TRACKING PRODUCTS AND SOLUTIONS***



PerceptiVU is a leader in providing real-time target tracking products and solutions. Founded in January 2002 PerceptiVU brings to the market a unique line of software-based video trackers.

The software paradigm allows for straightforward, yet flexible, implementation and integration into a variety of applications, such as ground-to-air, air-to-ground, ground-to-ground and Naval operations. The software paradigm also affords quick implementation of new and different tracking algorithms. Such algorithms can be "custom tailored" for specific tracking scenarios, thus eliminating the need for highly proprietary and costly hardware solutions.

PerceptiVU's product offerings include: PVU-TT –Target Tracker and PVU-AMT – Automatic Motion Tracking. PVU-TT is excellent for EO/IR tracking, particularly from a moving platform, like Unmanned Aerial Vehicles (UAV's), ground vehicles or ships. PVU-AMT is excellent for security and surveillance applications from stationary locations. In both cases the objective is to zoom in and automatically guide the Pan/Tilt device in a smooth fashion, in order to obtain high-resolution imagery of the object of interest.

## PVU TT

The **PerceptiVU Software Target Tracker** is implemented in a Linux environment allowing for installation on a variety of platforms including industrial rack mount, as well as embedded computer platforms. The improved efficiency and commercial availability of Gigahertz CPUs make an off-the-shelf, PC based, embedded target tracking platform increasingly powerful. Other kinds of tracking systems developed in hardware are highly proprietary and expensive to modify or enhance for any particular tracking scenario. We pride ourselves on the ability to work with the customer and their application to integrate appropriately for a superior result.

PerceptiVU offers a pre-configured unit in a 1U rack-mount system with Linux and a 32 bit frame-grabber installed. The PerceptiVU architecture can also take advantage of commercially available peripherals (i.e. touch screen monitors, joystick controllers and so on).

PVU-TT is excellent for EO/IR tracking at long distances, particularly from moving platforms like Unmanned Aerial Vehicles (UAV's), ground vehicles or ships. PerceptiVU's TargetTracking (PVU-TT) software is based on six tracking algorithms: 1) Dynamic Centroid, 2) Hottest Spot Tracking, 3) Dynamic Correlation, 4) Motion Detection, 5) Threshold tracking, and 6) Edge Tracking.

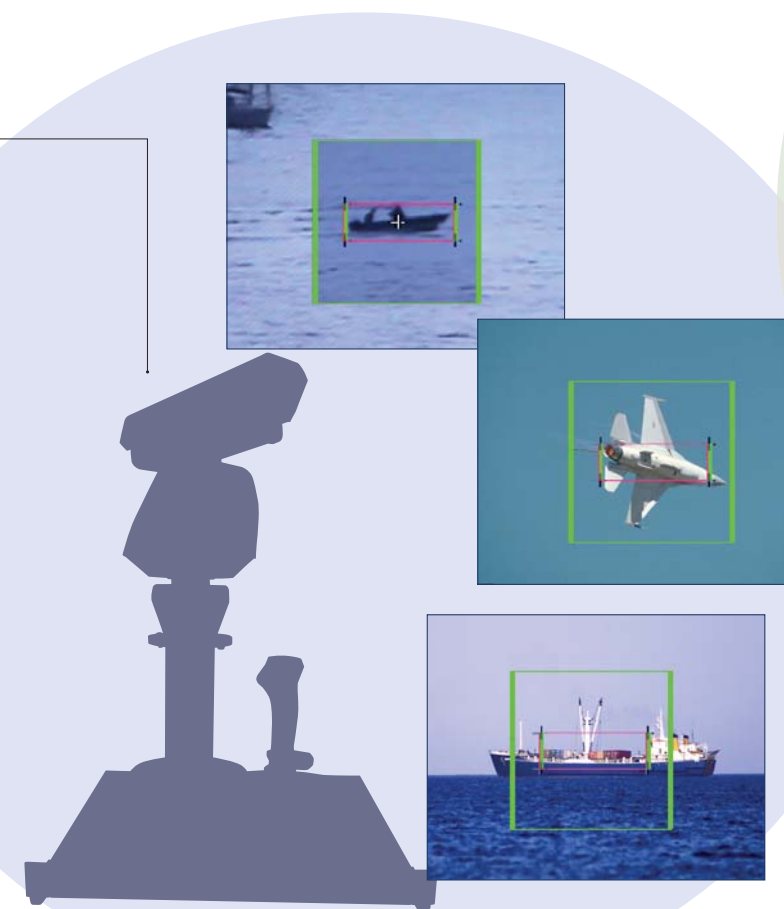
The tracker has built-in RS232 control of many standard Pan/Tilt devices, as well as Gyro-Stabilized Turret systems. If we do not currently have communications built-in for the device you wish to use, we can add the desired communication interface very easily.

### KEY FEATURES

– Six tracking algorithms available:

- Dynamic Centroid
- Hottest Spot Tracking
- Dynamic Correlation
- Video Motion Detection (VMD)
- Threshold Tracker
- Edge Tracker

- Capture from standard analog video sources (NTSC, RS170).
- Control the entire system with TCP/IP commands or control the entire system with an off-the-shelf joystick controller or keyboard.
- Ability to capture and digitally save pictures or sequences of pictures.
- Wingman Extreme digital 3D Joystick Controller.
- TCP interface for full command input and information output.



## PVU AMT

### Automated Motion Tracking Software (AMT)

enables you to track an object in motion with an adaptable camera (Pan-Tilt) as it moves within a fixed camera scene. When the system senses a target in motion within the fixed camera scene, the adaptable camera tracks the target as it moves within the scene. Multiple fixed cameras can connect to the system to enlarge the area covered by the adaptable camera.

The technology is based on acquiring an object in motion. It is automated by being able to run independently and automatically, acquiring objects in motion, and tracking without user intervention once the software is set and calibrated. In situations where there are multiple potential targets, the user can select the one of greatest interest.

The software enables an adaptable camera to track and zoom in on an object of interest, ultimately producing high-resolution imagery of the target.

### USES FOR AMT

#### Security and Surveillance:

- Tracking Cars/People in Parking Lots/Public Places
- After-Hours Surveillance
- Perimeter Security and Defense
- Port Security



I've been very impressed with PerceptiVU's: products, services and staff. The Tracker has been instrumental in our UAV project. Keep up the good work!

– Isaac Kaminer, Naval Post Graduate School



PerceptiVU 1U rack-mount computer with integrated PVU\_TT software.



PerceptiVU tracking system with a Logi-Tech Wingman joystick and an optional Pelco Esprit Pan/Tilt unit.



Dual camera configuration (fixed reference camera & Pelco Esprit Pan/Tilt) for use in Automated Motion Tracking.

### HARDWARE SPECIFICATIONS

The customer is welcome to purchase the PerceptiVU software independently. Installation requires an appropriate computer with Linux Fedora Core 2 and a frame grabber board. Alternatively, the customer can purchase the software installed and configured on the PerceptiVU hardware. The 1U rack-mount chassis from PerceptiVU includes the following:

- 2.8 Gigahertz INTEL Pentium CPU
- 533 Megahertz front side bus
- 40 gigabyte hard drive
- 512 megabytes of RAM
- 32 bit PCI Frame Grabber with 4 NTSC inputs
- NTSC and VGA output.
- RS232 serial port
- Four USB 2.0 ports
- Length 16.8" width 14.6" height 1.75"
- Shipping Weight 18 lbs
- 110VAC , 180 watts

### CAMERAS AND PAN-TILT UNITS

Depending on your application, you will need to choose a camera/pan-tilt unit. The following is a selection of the units that currently communicate with PerceptiVU's software. If you do not see a unit that meets your requirements, other units can be added at your request. Alternatively, you can integrate the tracker into your own system by communicating with the tracker via TCP/IP.

- Cohu – 3950 - 3960 Series I-View
- Directed Perception - Integrated Pan/Tilt
- Pelco - Spectra III™ SE Series, Integrated Dome System and Esprit Pan/Tilt
- RVision

### SYSTEM CONTROL

The tracker software is designed to be controlled via any of the following inputs:

- An off-the-shelf joystick controller [USB Joystick Controller (LogiTech Wingman™)]
- TCP/IP – 100/10 mbs
- RS232/RS422
- PC Keyboard

### PERFORMANCE SPECIFICATION

Target to boresight update rate.....	30Hz
Target to boresight update latency (depends on algorithm).....	Between 5 and 14ms
Minimum target contrast.....	5%
Minimum Target Size.....	2x2 pixels
Maximum Target Size.....	450x350 pixels

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