

. INTRODUCTION

1. Introduction

Eagle-Eye turns your Personal Computer into a powerful Digital surveillance system which enables you to monitor your kids, employees, home and building using a computer and ordinary phone line from anywhere in the world. This cost effective system provides many useful features and extends the flexibility of remote monitoring from PSTN to computer networks.

Every feature such as video monitoring, digital recording, transmission, external device activation, camera control, video data search can be controlled by just click of a mouse.

Our innovative and intelligent digital video processing technology called BOSS algorithm minimizes disk storage and increases video transmission speed.

With the Eagle-Eye, you will experience the power of a computerized security system.

Real-time monitoring

We have concentrated on developing the real time monitoring system because motion picture handler which was implemented in analogue system does not function properly in digital system.

Card base which make installation and A/S easy.

Other company's systems use a Set-top box base. This base is expensive and setting up surroundings of system is fixed. Therefore, the addition of new functions is not easy and the system can not used for other purposes. To make up these defects, our product, the Eagle-Eye, is made to use the security system directly after installing the Card to the multimedia PC.

BOSS(Block-based Selection System) Compression Algorithm

We have the best compression ratio in the field of security. Compared to any other digital systems, our product, Eagle-Eye can store much more data on given disk space. Therefore, Eagle-Eye gives you the cost-effective solution for real-time security.

Add-on card type which can be installed easily

Although other products are Set-top box type, the Eagle-Eye is an add-on card type which can be installed easily on the personal computer and used just after installing a card.

In recent day, technology is standardized and there is little difference on its functions. In spite of this, we can proudly say that our monitoring and compressing technology is unique and the best in the field of security.



2. Applications

For constructive use:

- guard the basement parking area of an apartment complex
- watch the kids at a playground through computer at home
- guard the inside of an elevator
- supervise the materials and equipment of a construction field
- lookout the inside of an electricity room and office.






For industrial use:

- monitor a normal operative equipments.
- control the entrance and exit on a danger spot
- lookout a restricted area
- control a production field.
- control to enter the material storehouse.
- supervise the invader outside

For other use:

- supervise bank
- lookout the situation and people in a bus
- HomePage service
- show the active and real-time appearance of workers through homepage

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2. Comparison of Analog to Eagle-Eye system

Item	Analog	Third Eye
Record	Reduces picture quality by reuse of tape and long-term recording	Almost-permanent record device +HDD
Management	Daily tape replacement Additional tape management cost	Long-term Back-Up device unit No additional data management cost
Playback	Reduce picture quality No magnification	Remains original picture quality magnification in various ways
Functions	No multi-channel recording No sensor function No image compensation Sequential play Printing requires special device	Multi-channel recording Motion Detection acts as sensor Image compensation Random play direct date and time access Snap shot image printing Video and audio recording Remote monitoring Pan/Tilt remote control
Features		Digital recording system BOSS - advanced image compression algorithm 24 hour recording Monitoring : NTSC 30frame/sec PAL 25frame/sec Recording : NTSC 30frame/sec PAL 25frame/sec

. Digital Surveillance System, Eagle-Eye

1. Specifications

System Specifications

- Minimum Processor - Pentium II / 350MHz
- Minimum Memory : 64M recommended
- HDD : 15GByte(recommended)

Product Configuration

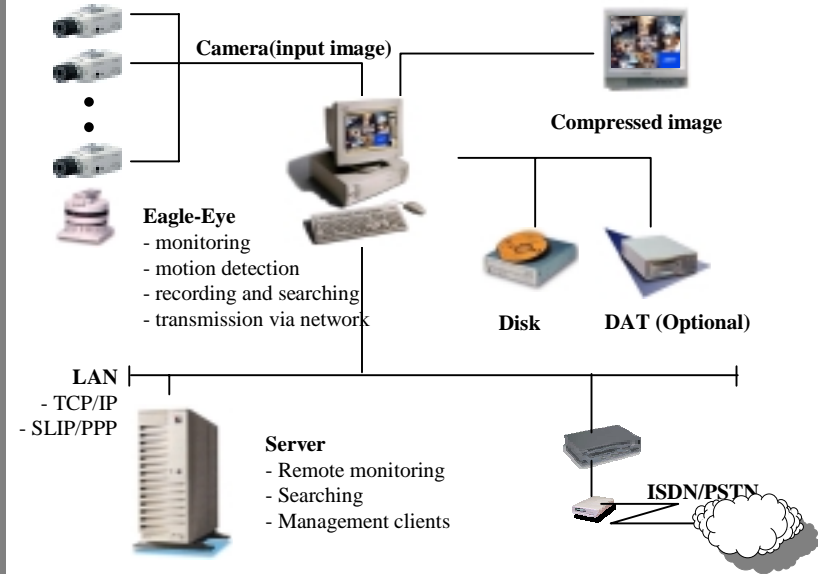
- Eagle-Eye Capture Board
- Eagle-Eye Overlay Board
- Eagle-Eye Paddle Board & BNC Module
- Remote surveillance S/W
- Eagle-Eye S/W CD-ROM

Option

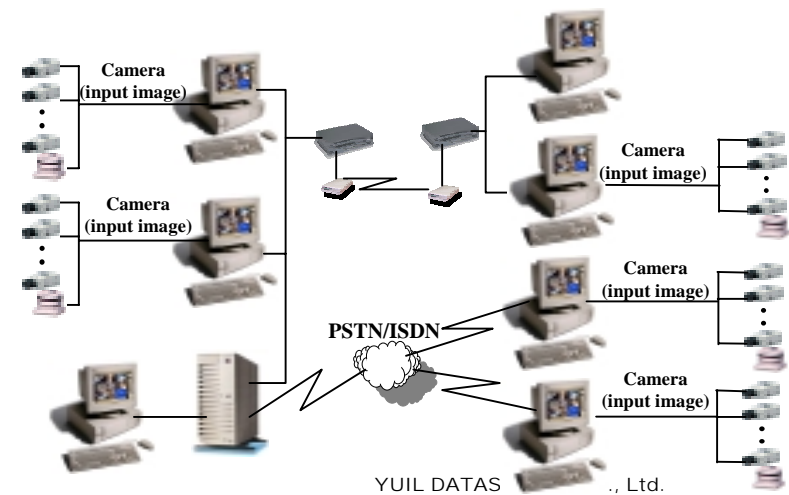
- Modem or LAN Card for Network transmission
- Sensor Board (16 channels in / 4 channels out)

2. Eagle-Eye Hardware Configuration

Eagle-Eye System Configuration

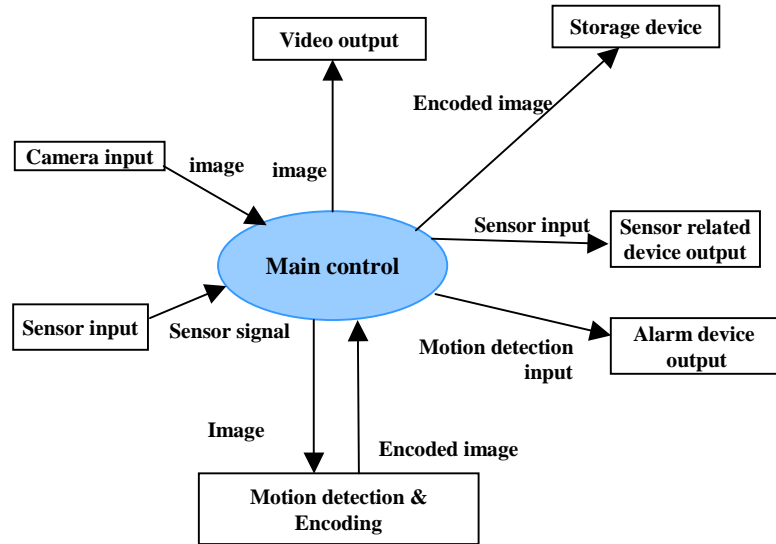


Eagle-Eye System Network Configuration



3. Eagle-Eye Software Configuration

Monitoring Software Construction

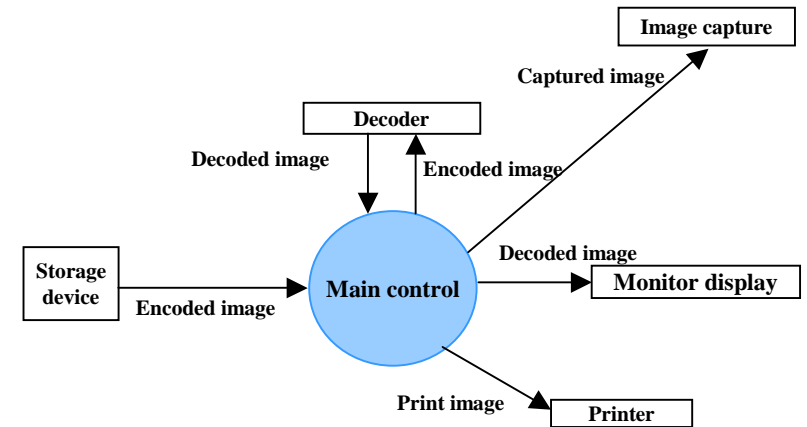


Eagle-Eye Monitoring

Ex : Eagle-Eye SE-1004/8 Model

- **High Resolution Screen display**
 - Overlay 30 frame/sec
 - 640*480, 320*240 screen mode for each channel
 - 1, 4, 8 channel screen mode
- **Recording image**
 - Capability of expansion to the video conferencing systems
- **Alarm**
 - Motion detection causes alarm.
 - 4/8 channels alarm output
 - Interlocking with sensor
- **Region selection for motion detection**
 - Each channel can select the motion detection region which makes subtle motion detection possible.

Search Software Configuration



Eagle-Eye Search

Ex : Eagle-Eye SE-1004/8 Model

- **Playback speed - 8 ~ 30frame/sec**
- **Alarm status table (Option)**
 - Direct access of alarm-occurred time
 - Image Compensation/ Interpolation
 - Convert the blurred image into a clear one
 - Convert the zoomed-in image into higher resolution image

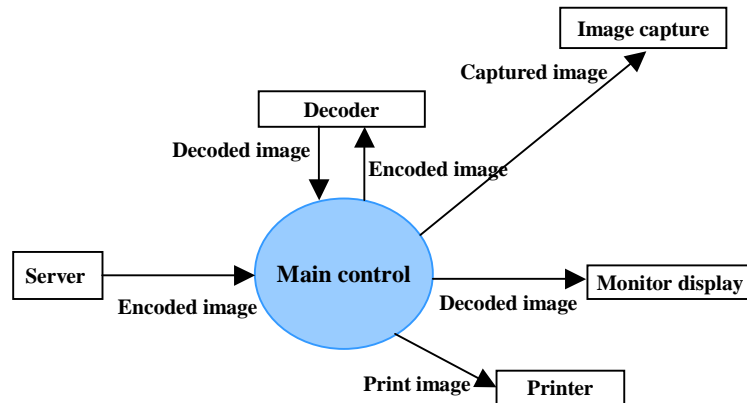
<Eagle-Eye Search>

<Magnification Picture>

<Processing picture>



Remote Software Configuration



Eagle-Eye Remote

- **Remote Surveillance**
 - Remote video monitoring through Modem, ISDN, or LAN
- **Remote pan/Tilt Control**
 - Control Pan/Tilt/Zoom in local from remote station
- **Capture Current screen image from remote**

4. Eagle-Eye Menu Configuration

Ex : Eagle-Eye SE-1004/8 Model

● Monitoring Menu (I)

1. **Power** : Exit the program
2. **Rec** : Record each channel
3. **Alarm** : Alarm when motion is detected (alarm sound, screen flash)
4. **Info** : Display information for each channel
5. **Search** : Run Search program
6. **Setting** : System environment setting
7. **Pan/Tilt** : camera pan/ tilt control
8. **Zoom** : camera zoom control
9. **Focus** : camera focus control
10. **Color control** : Brightness, contrast, Hue, Saturation



● Monitoring menu (II)

11. **Alarm region** : Select motion detection region
12. **Status** : Display current system status
13. **Clock** : Display current time.
14. **Quad A** : 4 channel screen mode for 1,2,3,4 channel
15. **Quad B** : 4 channel screen mode for 5, 6, 7, 8 channel
16. **Quad auto switching** : Sequential quad display by pre-set interval
17. **Single channel auto switching** : Sequential display of each channel pre-set interval
18. **Channel select** : Select each display channel

Ex : Eagle-Eye SE-1004/8 Model

Search Menu

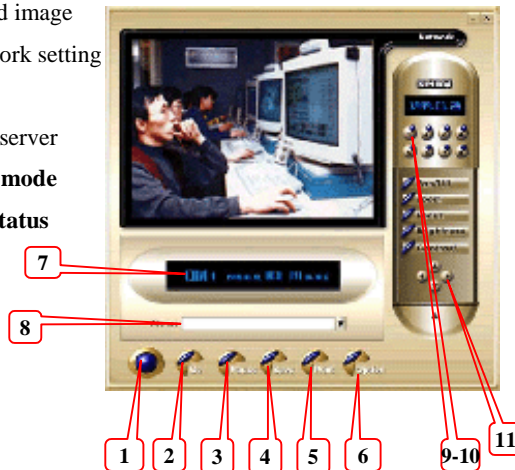
1. **Power** : Exit the program
2. **Save** : Capture an image and save as bmp file format
3. **Print** : Print current image
4. **Setup** : setup play mode
5. **Monitor** : Run monitor program
6. **Buttons** : Skip back, Pause, Stop, Normal, Double, Triple play
7. **Time slider bar** : direct play time access
8. **Calendar** : Select record file easily
9. **File lists** for each camera
10. **Double and triple play speed mode**



Ex : Eagle-Eye SE-1004/8 Model

Network Menu

1. **Power** : Exit the program
2. **Go** : Connect to selected monitor server
3. **Pause** : pause monitoring
4. **Save** : Capture an image and save as bmp file format
5. **Print** : Print current displayed image
6. **Option** : Server list and network setting
7. **Display connection status**
8. **IP Address** : Select monitor server
9. **Set** : Select image receiving mode depends on network status
10. **Easy camera selection**
11. **Camera control** : Control Pan/tilt, Zoom, Focus, Brightness, Contrast in server part.



. CHARACTERISTICS

1. Compression Ratio

BOSS(Block-based Objective Selection System) Algorithm

Motion Detection

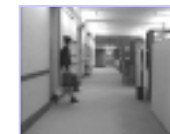
- Able to record when object motion is detected based on BOSS algorithm
- can playback object (moving image) without recording the background image.

Motion detection



<Background image>
If no motion detected, image saving won't occur.

Segmentation & compression



<Captured Image>
Separate an object from the background



<Motion Detection>
Compress the object and save.

When motion is detected, the picture is divided into two parts, a moving target part and a non-moving part(background). Then the image data of moving object is compressed and recorded only. Therefore, you can store much more data on given disk space and this compression technology gives you the cost-effective solution.

Eagle-Eye Storage Statistics (I)

Condition (I)

30 % motion, medium storage level(about 3KBytes), Capture rates : 1frame/sec

$$1\text{frame} = 3\text{K} * 0.3 = 0.9\text{KByte}$$

$$1\text{ hour} = 0.9\text{KByte} * 3,600\text{sec} = 3,240\text{KBytes}$$

$$1\text{ day} = 3,240\text{KBytes} * 24 = 77.76\text{MBytes}$$

$$\text{Days} = 10\text{GBytes} / 77.76\text{MBytes}$$

$$= \mathbf{128\text{ days}}$$

GoldenCOPS Storage Statistics(II)

Condition (II)

30 % motion, Ultra high storage level(about 5KBytes), Capture rates : 30frame/sec

$$1\text{frame} = 5\text{K} * 0.3 = 1.5\text{KBytes}$$

$$1\text{ sec} = 1.5\text{KBytes} * 30\text{ frames} = 45\text{KBytes}$$

$$1\text{ hour} = 45\text{KByte} * 3,600\text{sec} = 162\text{MBytes}$$

$$1\text{ day} = 162\text{MBytes} * 24 = 3.88\text{GBytes}$$

$$\text{Days} = 10\text{GBytes} / 3.88\text{GBytes}$$

$$= \mathbf{2.5\text{ days}}$$

Eagle-Eye Family

SE-1004/8



- 8Channel Input
- CAPTURE/OVERLAY
- 30Frame/Sec
- 4CH/2Page Real time Monitoring
- Video Output

SE-2008/16



- 16Channel Input
- CAPTURE/OVERLAY
- 60Frame/Sec
- 8CH/2Page Real time Monitoring
- Video Output

SE-1016 LITE



- 16Channel Input
- CAPTURE
- 16CH still motion Monitoring
- 30Frame/Sec

SE-1004/OVR, Sensor B/D



- 1Channel Input
- Video Conferencing
- Digital Camera In-Put
- Sensor : 16Ch in / 4Ch out
- DC 12V Output

SE-3016

- 16Channel Input
- CAPTURE
- 120Frame/Sec
- 16CH Real time Monitoring
- OVERLAY
- Video Output

SE-1004/OVR



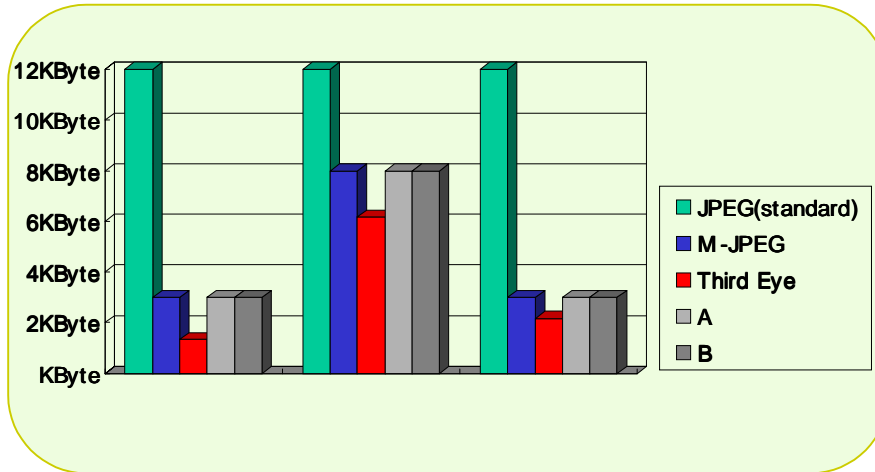
- Video 1Channel Input
- DC 12V Output
- Possible to connect with Sensor Board
- Digital Camera Input
- optimum in piture conference

. Specifications

		SE-1004/8	SE-2008/16	
Video		320 x240, 640 x480, 720 x 480		
	Camera Inputs	Up to 8 cameras		Up to 16 cameras
Compression	Algorithm	Block-based Object Selection System(BOSS) - Proprietary Algorithm Detection and separation of object and background (Segmentation) Saving of detected image only (Disk storage minimization)		
	Compression Ratio	1/8.9 of JPEG		
	Image Recording	15 ~ 30frame/sec		30 ~ 70 Frame/sec
Storage Capacity (1Frame/sec)	Conditions - HDD : 10GB - CH : 16Ch - Frame rate : 30frame/sec - moving rate : 30		Minimum level	Maximum level
		Recording time	128days	77days
Transmission	Remote monitoring	Video transmission through PSTN, ISDN, Network		
O/S		Windows 95/98, NT		
Monitoring	RGB NTSC/PAL /SECAM	PC monitor or Video monitor PIP, POP, Sequential Display		
Hardware	PC add on card	1. Quad & Frame Grabber Board PCI interface 4 / 8 Asynchronous NTSC/PAL Video input NTSC/PAL Out-Put	1. 16Ch Capture /Overlay Board PCI interface 8 / 16 Asynchronous NTSC/PAL Video input NTSC/PAL Out-Put Any VGA	
		2. VGA Board AGP interface NTSC/ PAL Input RGB Out-Put		
Function	Motion Detection	Alarm output from each camera Auto dialing upon alarm events Highlight of image variation on video recording		
	Monitoring	Sequential display, 2Page QUAD Real time video monitoring	Sequential display, 2Page 8CH, Real time video monitoring	
	Retrieval	Fast search of recorded video data using time and camera parameters		
	Printing	Recorded image printing		
	Watch-Dog	Built-in Watch-Dog		

SE-3016	SE-1016 light	SE-1CH-PS
320 x240, 640 x480, 720 x 480		
	Up to 8 cameras	Up to 16 cameras
Block-based Object Selection System (BOSS) – Proprietary Algorithm Detection and separation of object and background (Segmentation) Saving of detected image only (Disk storage minimization)		
1/8.9 of JPEG		
60 ~ 120frame per second	15 ~ 30frame/sec	30frame/sec
	Minimum level	Maximum level
Recording time	128day	77days
Video transmission through PSTN, ISDN, Network		
Windows 95/98	Windows 95/98, NT	Windows 95/98, NT
PC monitor or Video monitor PIP, POP, Sequential Display		
- Output : PC/Analog Monitor/TV - 16CH full Realtime Overlay - Channel freeze - Full freeze - 16CH Multiplexing - PCI Interface - Capture rate : 120fps	- 16CH Multiplexing - Any VGA - PCI Interface - Capture rate : 30fps	- Only 1CH Input - Desk top(PC) camera - Any VGA - 12V DC output - PCI Interface - Realtime Overlay - Capture rate : 30fps
Alarm output from each camera Auto dialing upon alarm events Highlight of image variation on video recording		
Sequential display , 1,4,9,16CH, Real time video monitoring	Sequential display , 1,4,9,16	1Channel Realtime Monitoring
Fast search of recorded video data using time and camera parameters		
Recorded image printing		
Built-in Watch-Dog		
YUIL DATASYSTEM Co., Ltd.		

● Comparison of the Compression Ratio



2. Card Base

● Card base which make installation and A/S easy.

Other company's systems use a Set-top box base. This base is expensive and setting up surroundings of system is fixed. Therefore, the addition of new functions is not easy and the system can not used for other purposes. To make up these defects, our product, the Eagle-Eye, is made to use the security system directly after installing the Card to the multimedia PC.

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Digital Surveillance System