Introduction of our pattern recognition technology and related technology
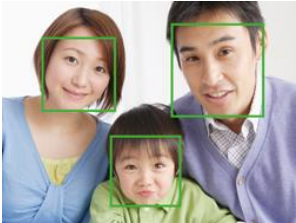
Cyber Core Co.,LTd.

What's pattern recognition technology?
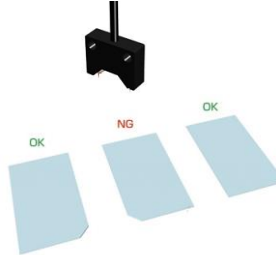
▶ A technology to "recognize" a object by extracting a specific part in an image.

▶ Operations that human had to use their "eyes" and "brain" can be automated and sped up.

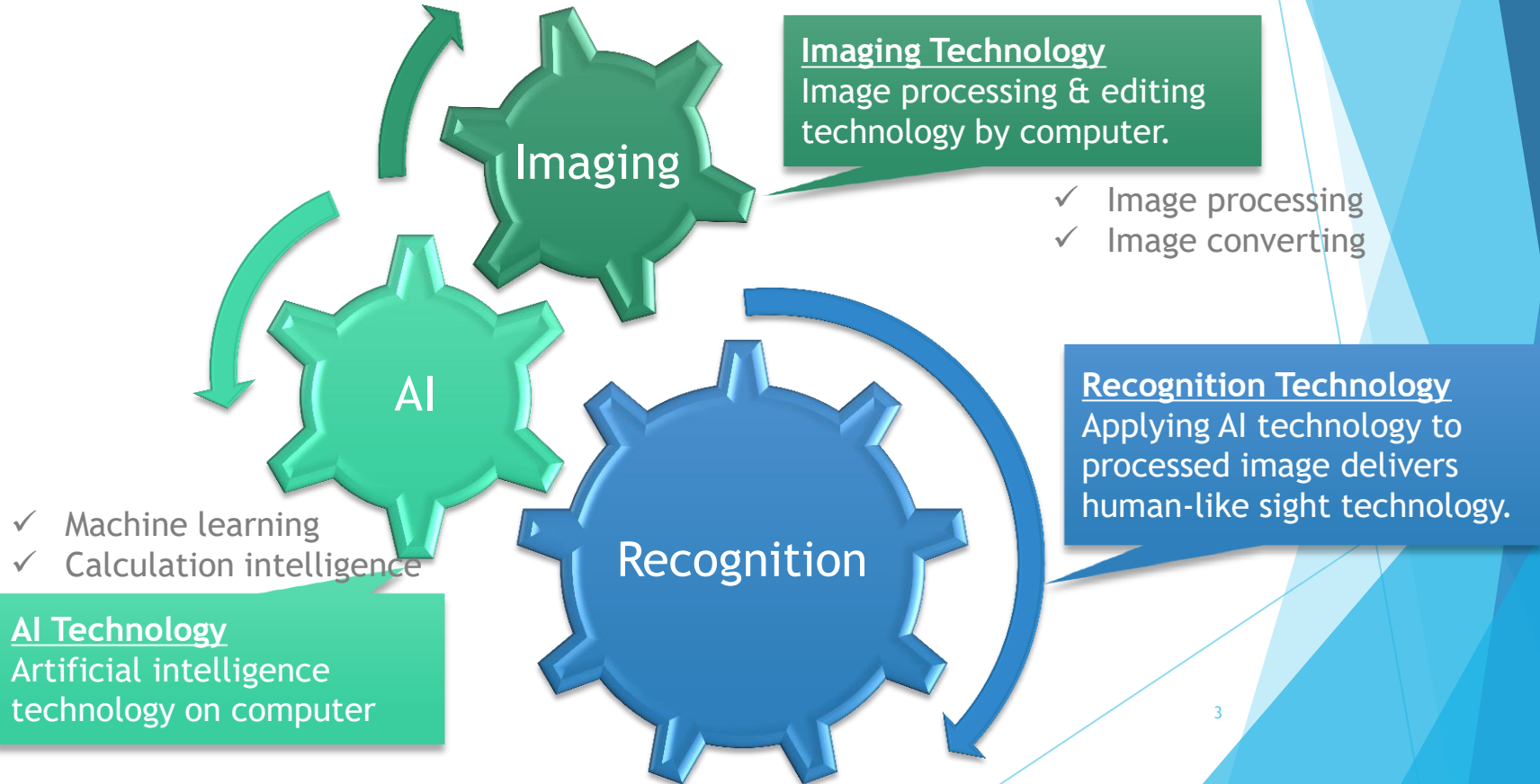Examples for using pattern recognition system

Specifying a person   Checking defect   Verifying similar images

Two factors that achieve our technology

Imaging

AI

Recognition

Imaging Technology
Image processing & editing technology by computer.

✓ Image processing
✓ Image converting

Recognition Technology
Applying AI technology to processed image delivers human-like sight technology.

✓ Machine learning
✓ Calculation intelligence

AI Technology
Artificial intelligence technology on computer

3

Key Technology

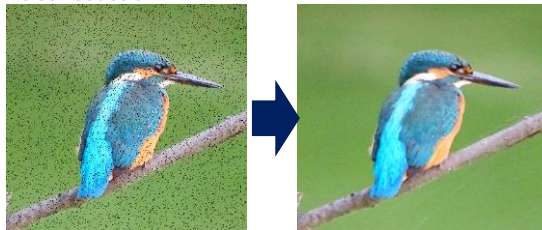| Image Processing	•Dilation & Erosion, Mask, Morphology, Filters, etc.
Image Converting	•Edge detection, Hough transformation, Mapping, Affine transformation, Fourier transformation, DCT, Distance transformation, Polygonal approximation, Chain code, Sequence, Geometry, Moment, Corner detection, etc.
Machine Learning	•Bayes classifier, Expert system, Statistical approach, Game theory approach, etc.
Calculation Intelligence	•Neutral network, SVM, Fuzzy theory, Genetic algorithm, etc.
Pattern Recognition	•Template matching(Histogram-Back projection method, Correlation coefficient method) etc. •Optic flow, Block matching, Motion template, Kalman filter, etc.

Imagin Examples

Image Proccesing

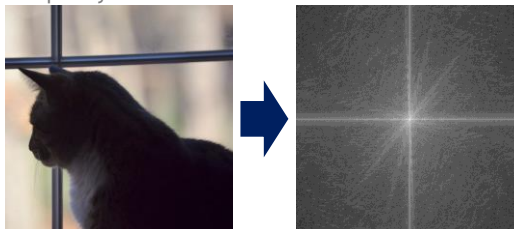Noise reduction

Unsharp-masking

Enhancing(LynxEye)

Image Conversion

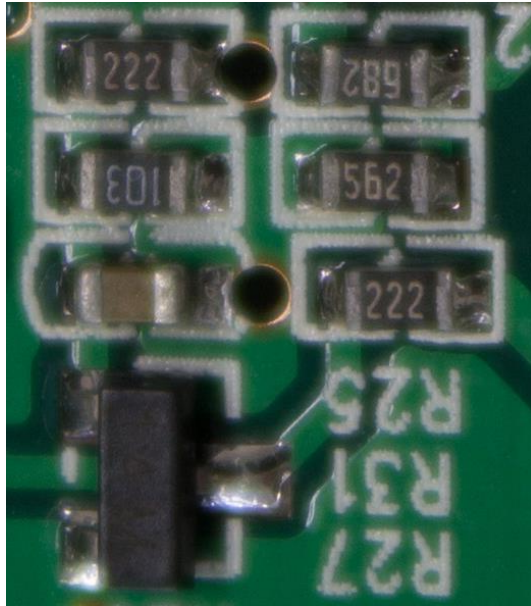Edge detection

Frequency transformation

Images we can support

▶ Natural image (photographs, movie)

▶ Artificial image (illustrations, plan-drawings)

▶ Medical (X-ray, MRI, etc.)

▶ Special (infrared, thermograph, etc.)

▶ 3D (stereo-vision)

▶ and ANY other types of "images"

Ex.1

▶ Comparing with template (an information provided in advance) and detecting matching spots in the input image.
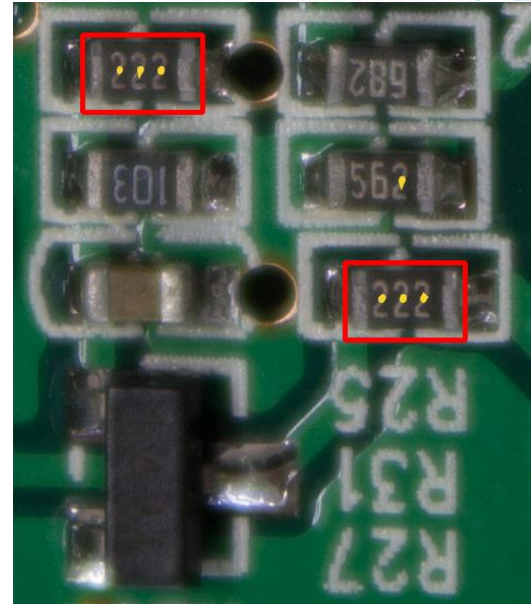
Ex.1）Detecting 2.2KΩ resistor

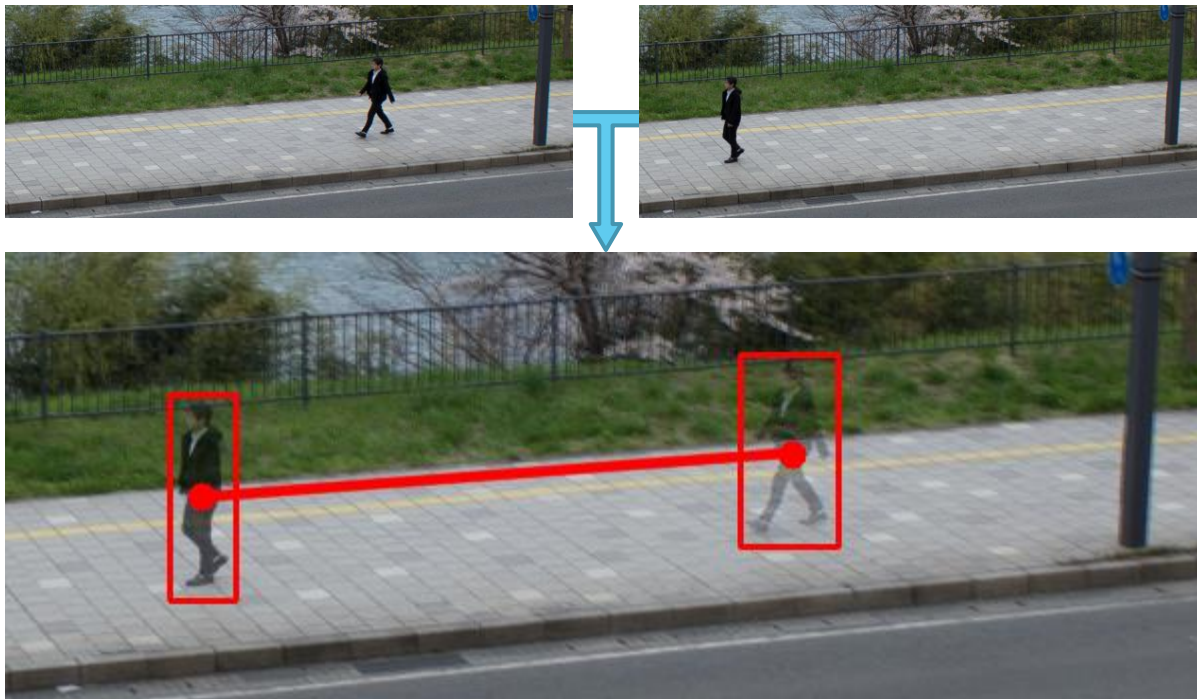Input Image

template image

detecting
222
from input image

Matching Result

Ex.2

- Tracking dynamic objects in an image or a movie

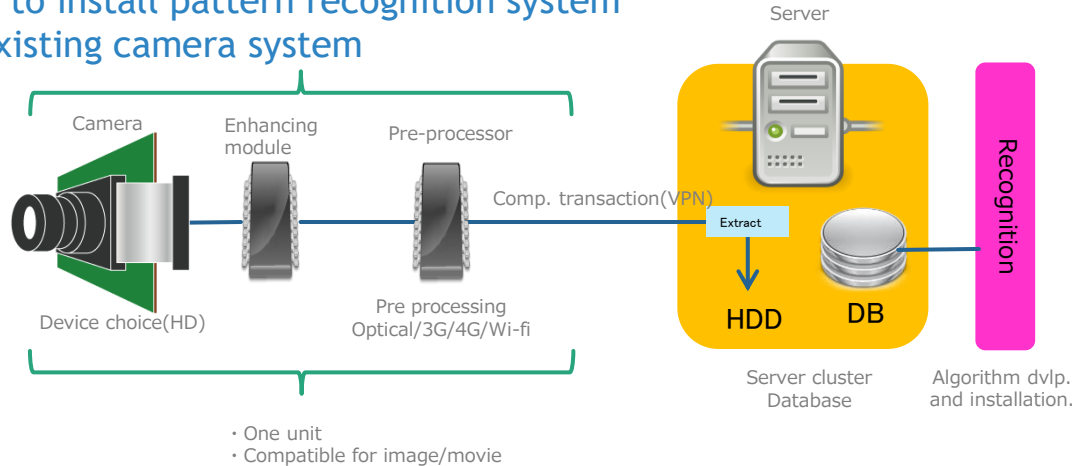Ex.2) Detecting dynamic object in previous/next frame, tracking a walking man.

Business Advantage

▶ You can resolve issues that "normal" system can not.

▶ You can additionally install our technology to "existing" system.

How to install pattern recognition system to existing camera system

Server

Camera

Enhancing module

Pre-processor

Comp. transaction(VPN)

Extract

Recognition

Device choice(HD)

Pre processing
Optical/3G/4G/Wi-fi

HDD   DB

Server cluster
Database

Algorithm dvlp.
and installation.

· One unit
· Compatible for image/movie

Highly valuable and competitive solution

Example of applications

- Dynamic movement detection analysis
  (human movement, expression and sound)
- Automatic driving sensing
- Dark & security cameras
- Dark & automatic dynamic tracking
- Road & car number recognition
- Dynamic objects and events detection by security camera
  (incident, theft, etc.)
- Bridge checking system
- Disaster sport specifying system
- X-ray examination system
- Hand drawn text recognition system
- Property recognition system
- Coin recognition system
- Fluid recognition system