

# Future Innovation

Next Generation User Interface Technology that Enables Intuitive Operation with Fingers

Advanced Technology

## Customer Benefits

- A natural user interface that can easily be used anywhere by anyone.
- Realization of a world in which ICT services can be used without PCs.
- Improvements in business operations and services in fields where ICT has not been used before.

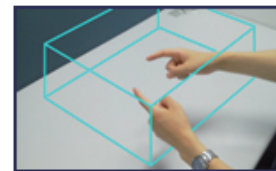
Fujitsu has developed a natural and intuitive user interface technology with which users perform operations on objects in the real world using their fingers. As a new frontend for ICT systems, we will realize new usages of ICT that has been integrated into real-world environments, with a goal of putting this technology into practical use in 2014.



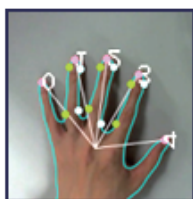
Prototype system



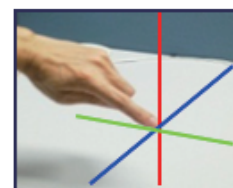
Direct operation of real objects



3D space operation area



Highly accurate extraction of finger characteristics



Estimation of 3D fingertip position

## Actual Usage



Products are presented and procedures performed at a table.



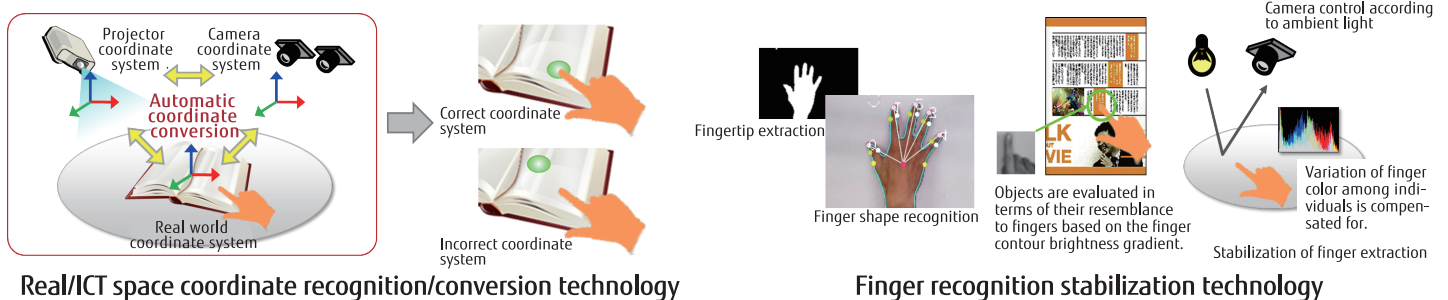
Information is displayed/processed for products on display in the showroom



Brainstorming in an environment where paper, pens, and electronic information are used together.

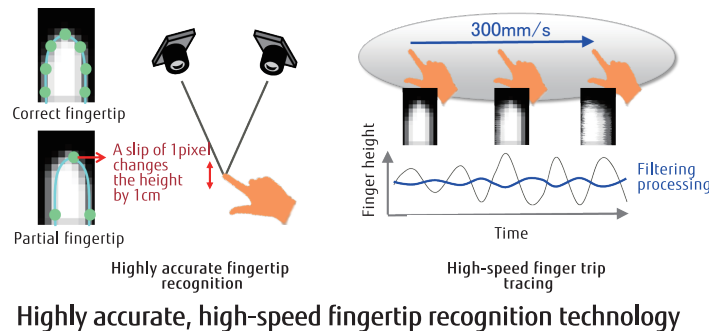
# Technology Features

- **Real/ICT space coordinate recognition/conversion technology.** Patent Pending
  - Irregular shapes in the real world (e.g., a table) are automatically measured by cameras in order to automatically adjust the three coordinate systems.
  - Finger movements and touching of objects with fingers perfectly match the projection display.
- **Finger recognition stabilization technology.** Patent Pending
  - Fingers are recognized by shape and skin color.
  - By evaluating the background for its resemblance to fingers, the number of cases in which the background is misrecognized as a finger is reduced.
  - Finger extraction is stabilized through camera control according to ambient light and by learning/recognizing the finger shapes and skin color of each individual.
- **Highly accurate, high-speed fingertip recognition technology.** Patent Pending
  - Fingertips are accurately detected from low-resolution camera images and finger shape information.
  - Shaking of fingertips, which varies depending on finger movement, is smoothed over by filtering processing and is accurately traced at a speed of up to 300 mm/s.



Real/ICT space coordinate recognition/conversion technology

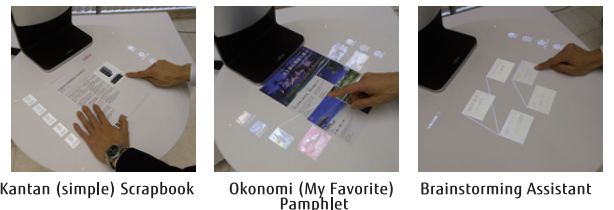
Finger recognition stabilization technology



Highly accurate, high-speed fingertip recognition technology

## Actual Usage

- **Kantan (simple) Scrapbook:** Allows anyone to intuitively create scrapbook paper materials by simply tracing the necessary articles with a finger.
- **Okonomi (My Favorite) Pamphlet:** Sequentially displays relevant information on the table as one listens to an explanation of products at a travel agency counter.
- **Brainstorming Assistant:** Allows hand-written memos and electronic information to be combined at meetings.
  - Sections in this document marked Patent Pending relate to technologies for which a patent application has been submitted.



This pamphlet is translated from the Japanese local pamphlet.  
 Some contents reference information relevant to Japan only. (e.g. Cost/Patent)  
 If you need further information, please contact our sales representative in your region.  
<http://www.fujitsu.com/global/>