

Integrated Information Service System for EXPO 2005 AICHI based on CONSORTS Architecture

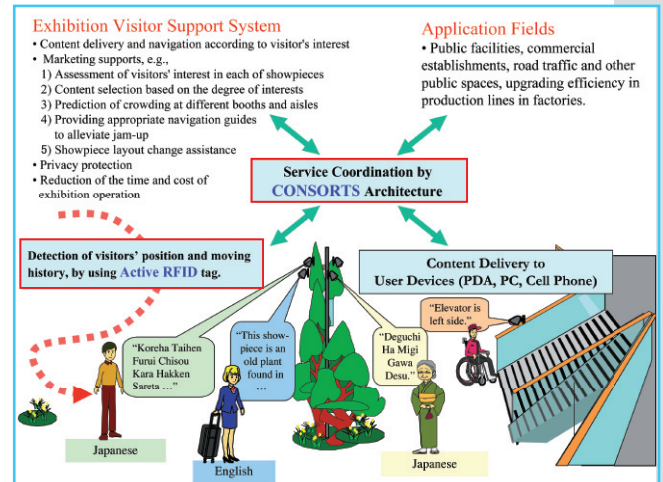
Based on CONSORTS architecture, we have realized an integrated information service system for the Global House which is a theme pavilion of EXPO 2005 AICHI. The system provides several kinds of information services including 1) audio content delivery about exhibits, and 2) exhibition management service by human flow analysis such as popularity analysis about exhibits and re-planning of exhibit locations, with composing several information service processes by ubiquitous service coordination. Visitors to the Global House can download audio content by a card-type terminal called Aimulet GH. A wireless IC tag is also embedded in the Aimulet GH that transmit the information about the visitor to infrastructure devices. The CONSORTS receives the data and invokes interpolation, data mining, and human flow simulation process in order to execute human flow analysis for marketing tasks.

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Figure: Exhibition Visitor Support System based on CONSORTS Architecture.



High-performance organic thin-film photovoltaic cell with molecular p-n junctions

The solar cell utilizing clean and inexhaustible solar energy is expected to be the major domestic energy source in future in view of preventing global warming. One of the most promising candidates is organic thin-film solar cell, which can be produced at a reduced manufacturing cost. We have found that introducing a nano-structured layer (i-layer) where organic semiconductor forms a 3-dimensional p-n junction at the molecular level into p-n junction interface of organic thin-film solar cell expands the practical photovoltaic layer to enhance the efficiency of light utilization. With the p-i-n type organic thin-film solar cell, a power conversion efficiency, 4 %, a world top level, has been achieved. Getting the perspective for upgrading the power conversion efficiency of organic thin-film solar cells in this way, is expected to accelerate the realization of low cost, lightweight and flexible plastic solar cells.

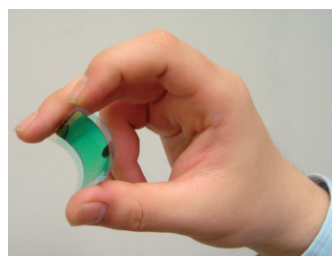


Fig 1: Photograph of flexible and colorful organic thin-film photovoltaic cell.

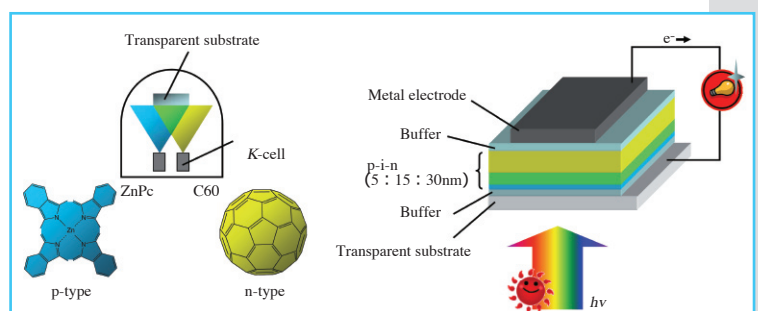


Fig 2: Fabrication method and device structure.

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