SUTD-MIT INTERNATIONAL DESIGN CENTRE (IDC)
The IDC is a world premier scholarly hub for technologically intensive design, research and practice. The IDC is built upon the development of the following foundations:

**Leaders for an Innovation-based Economy**
- Entrepreneurs
- New Faculty
- Awards & Honours
- Industry Leaders
- Research Labs & Think Tanks

**Innovations for Societal Needs**
- Start-up Companies
- Exhibitions
- Creations
- Installations

**Intellectual Merit**
- Top Impact Journals
- Monographs
- Education Modules

The IDC is a multi-million dollar centre based in Singapore at SUTD, and Cambridge, MA, USA at MIT, with academic and industrial partners from around the world. The IDC seeks to leverage their environment and partnerships to create the next generation of technically-based leaders, world-class scholarship, and entrepreneurship as part of an innovation ecosystem.
• Leaders for an Innovation-based Economy

The IDC research is tightly integrated with SUTD’s curriculum. For instance, the undergraduate education experience incorporates design experiences, facilitated by the IDC, throughout the entire degree programme. At the same time, the IDC is a source of new ideas for design education, methodology, tools and practices. By interacting with the curriculum, the IDC is catalysing pedagogical innovation and experimentation and developing technically grounded leaders.

• Innovations for Societal Needs

The IDC faculty, staff and students work together to design devices, systems and services that address strategic needs of Singapore, the region and the global community. The IDC has identified three Grand Challenges: Sustainable Built Environment, Design with the Developing World, and ICT-enabled Devices for Better Living.

The Grand Challenges inspire project-based design experiences, the development of new technologies, and the deployment of design for the needs of society.

• Intellectual Merit

The IDC is revolutionising design science research. Scholars in the IDC study all aspects of technical systems and design processes, and develop new tools and methods for cutting-edge design practice and education. The IDC research is organised around six Design Research Thrusts: Experimental Design, Design Computation, Visualisation and Prototyping, Fostering Creativity, Decision Making, and Global Collaboration.

These research thrusts advance the principles of design thinking across multi-disciplinary boundaries.

“Grand Challenges” >>>

Sustainable Built Environment
Design with the Developing World
ICT-enabled Devices for Better Living

Experimental Design
Design Computation
Visualisation and Prototyping
Fostering Creativity
Decision Making
Global Collaboration

Research efforts within the Grand Challenges and Design Research Thrusts interact to simultaneously advance design research, technology, and practice.
Examples of Key Contributions

ICT-enabled Devices for Better Living / Global Collaboration - Finger Reader:
A finger-worn device that assists blind users with reading printed text ‘on the go’. A novel computer vision algorithm for local-sequential text scanning enables reading single lines, blocks of text or skimming the text with multimodal feedback.

Sustainable Built Environment / Visualisation and Prototyping - Topologically Interlocking Joinery (TIJ):
Advancing the knowledge of TIJ through the understanding of traditional Japanese joinery as well as the development and use of modern computational methods. This understanding is applied to new joinery concepts for both architectural and technical applications.

Design with the Developing World / Fostering Creativity - PREPHub Mobile:
Designed around compact and transportable form factors, PREPHub Mobile fits on standard pallets for worldwide deployment to crisis zones. The system modules provide emergency supply storage, clean water from various sources, night lights, personal power generation, a mesh network communication system, space for food preparation and a discrete place for personal waste disposal.

ICT-enabled Devices for Better Living / Experimental Design - Mobile Imaging System for Early Skin Cancer Diagnosis:
With the growing incidence of skin cancer, there is a pressing need for an accessible and accurate pre-screening solution to improve the general awareness and early detection. This smartphone-based application analyses skin moles based on colour, border, asymmetry and texture variations to compute a result.
Potential Collaboration Opportunities

1. **Consortium membership.**
   - Subscription and partnership.
   - **Benefits**
     - Participation in IDC events such as Industry Day, workshops and talks.
     - Continual update of research and project results.
     - Preview of IDC research and technologies.
     - Contribution of input on future research (IDC Summit, Consortium Projects).

2. **Sponsorship of student projects.**

3. **Attachment of researchers to the IDC through joint projects.**

4. **Companies’ establishment of research labs at the IDC.**

5. **IDC researchers located with companies.**

6. **Process assessment, workshops, professional development, such as innovation processes and ideation techniques.**

7. **Sponsorship of directed projects connected to the companies.**
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