

Research Clusters Embedded Computing Cluster

An embedded computer is a computer that is a component of a larger system; it helps implement the system functionality. Embedded computers exist in automobiles, airplanes, home appliances, military vehicles & equipment, medical devices, robots, mobile communication systems etc. Sophisticated embedded computers have been used in products and systems for over twenty years. Embedded computing includes several aspects: methodology, architectures, and applications which is practiced in conducting research. Methodology is important because the prime goal is to be able to reliably and predictably develop new systems. Embedded computers are used to make a wide variety of systems, therefore methodology of designing an embedded system that enables assessment of a system requirements, develop an architecture, and implement the embedded system, is very important. Architecture is used here in a broad sense: both software and hardware. Early decisions can make or break a design. It is important to get the structure of the software and hardware right at the architectural stage in order to avoid expensive problems later in the design process.

This generally means jointly considering the effects of architectural decisions on both the hardware and software sides of the implementation. Applications are the motivation for embedded computing. It is important to take application characteristics into account during the design of an embedded system, and also important to understand at least one application area well in order to do the best research in embedded computing. In summary Embedded Computing research cluster will involve in enhancing knowledge and creating technology in hardware & software design techniques through embedded system application development.

Objective

The objective is to explore the details of embedded computing aspects which are the Methodology, Architecture and Application. This will enable cutting edge technology development in hardware and software through embedded system applications development.

Roadmap & Direction

To achieve the objective, 3 sub-clusters are formed which are:

- **Embedded System**
- **Communication Technology**
- **Artificial Intelligent & Networking**

Each sub cluster will have a group leader to make sure research activities are actively and efficiently executed through regular meeting and seminar among researchers. The success of this cluster will be made through collaboration with the other six research clusters within UniMAP, other related local and global industries, and universities.

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