

Bangabandhu Sheikh Mujibur Rahman Digital University

Department of Internet of Things and Robotics Engineering

Bachelor of Science in Internet of Things and Robotics

Engineering

Project report on : Edge computing task manager based operating system

Course Title : Operating System Lab

Course Code : ICT 4260

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# Introduction:

This project aims to develop an operating system with a built-in Edge Computing Task Manager, leveraging Visual Studio and Cosmos User Development Kit. Edge computing enhances processing efficiency by executing tasks closer to their origin, reducing latency in decentralized environments.

Objective :

The primary goal is to create a bootable operating system with an integrated Edge Computing Task Manager and basic file system with process scheduling and memory management to optimize task processing and minimize latency and easy file management with memory management and cpu scheduling.

# Software Needed:

* **Cosmos user kit :** Used as the foundation for building the operating system.
* **Microsoft Visual Studio:** Integrated development environment for coding and debugging.
* **VMware Player:** Virtualization software to simulate and test the operating system.

**Working procedure:**

* Install Visual Studio and Cosmos User Development Kit.
* Develop C# code for the operating system.
* Create a bootable operating system.
* Integrate the Edge Computing Task Manager feature.

Implementation:

Utilize C# programming to build the operating system, focusing on incorporating the Edge Computing Task Manager. The code will prioritize decentralized task execution and efficient management. Also there will be a File management system feature in the system where we can create file, edit file, update or rename file, delete file and read the content of the file (for edit,read,delete,update permission is needed). Memory management where the size of the file will show and also the file will be automatically saved on the virtual file system. Also date, time will be shown. In this project Round robin, shortest job first, first come first serve, multilevel feedback queue and priority scheduling also present and we can let the process allocate memory and also has the option to see all the process running list.

Conclusion:

This project will result in an innovative operating system equipped with an Edge Computing Task Manager, offering improved performance in decentralized computing environments. The implementation aims to reduce latency and enhance task processing efficiency.