**Project Interim Report**

**Designing MPI Based Queuing Management System Using JAVA Language**

**Abstract:**

Since queues are formed of entities or people in different scenarios and locations like restaurants, banks and so on, therefore in order to cater these queues in better way a system is required.

Such system having capability to reduce time, cost and make better customer service in different situations.

Thus, we are going to make queuing system where communication amongst components of queuing system will be MPI based that will be implemented in Java language.

Further note that such system has already been made using C++ but user interface is yet to complete. So, using JAVA language, we will be designing queuing system for industrial use.

By using queuing system, customers are satisfied with the turn by turn system and there is no mess up at the counter. Token number will be called and the one with the same token number have an access to the counter for collecting their meal/product.

Although Socket programming has already been used for achieving the task but now a day working on MPI is due to the benefit that it will ease down the complexities of coding and implementing algos.

**Preliminary design:**

As per the design to implement middle ware as MPI to achieve communication between queue management system components.

We have used open MPI library to achieve required objective.

**Actions:**

Linux VM is created where queue management system java interface is on NetBeans having all components kitchen, caller and take order.

MPI library is added in same OS and by using this library all components message passing will be achieved.

**To Be Done:**

MPI code is under progress including sending and receiving and its ranking and size in java which will be used in communication of all queue management system components kitchen etc. that will be integrated in java interface code.

**References:**

[1] <http://mpitutorial.com/tutorials/mpi-send-and-receive/>

[2][https://www.cs.carleton.edu/faculty/dmusican/cs348/mpi.html?fbclid=IwAR0vZhe9k6A\_KiXQsAjwaq3io74LWxDuLfmfCSm20WMJ967ssaLjX\_l7A4](https://www.cs.carleton.edu/faculty/dmusican/cs348/mpi.html?fbclid=IwAR0vZohe9k6A_KiXQsAjwaq3io74LWxDuLfmfCSm20WMJ967ssaLjX_l7A4)

[3] [https://www.open-mpi.org](https://www.open-mpi.org/)

[4]https://www.youtube.com/watch?v=EfD6A8rFZk&fbclid=IwAR2XEGUm5j1c3wRlXSmK3lPYGmzmx6YcnLCTKwh45UZHTwlMe3ULQwuTNMc