CHAPTER 7 CONCLUSION AND FUTURE ENHANCEMENT

7.1 Conclusion

The distributed organization is a customary concept by way of it has been revolved obtainable to be a consistent vehicle for executing a shared memory archetypal to a dispersed setup. This exploration has initiated one technique of developing virtual shared memory for multi computer framework. In comparison with previous architecture, it will provide numerous benefits like scalable DSM with less functions, invisible process communication, it protects the developer against sending and receiving primitives and cheaper, more portable interface and not required memory controller at each node. It also removes false sharing due to the individual handling of variables. However, appropriate presentation of this model strains a thorough evaluation of some structural issues, i.e. interaction with logical memory, data granularity, organization and choice of consistency method between further. These side disputes are complex and comprises more features that upset structure. In this investigation, the combination of equally the design structure development and the virtual memory organisation was a fundamental part. Due to proposed methodology, it will give up to 92 % (based on 10 nodes) performance improvement over existing techniques with considered parameters as mentioned Table 6.3.

Table 6.3 Architectural variance over Traditional Systems

<table>
<thead>
<tr>
<th>Specification</th>
<th>Shared Variable based Memory</th>
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</thead>
<tbody>
<tr>
<td>Remote Memory Access</td>
<td>Language (Both access done by language as defined by the programmer)</td>
</tr>
<tr>
<td>Attached Memory</td>
<td>Yes (Programmed in software, in case of hardware attached memory there will be its limitation in size)</td>
</tr>
<tr>
<td>Hardware Remote Access</td>
<td>Not Possible (Defined in language)</td>
</tr>
<tr>
<td>Memory Operations</td>
<td>Read/Write</td>
</tr>
<tr>
<td>Large Shared Address Space</td>
<td>Yes (Defined by a programmer according to requirement)</td>
</tr>
<tr>
<td>Data Access Unit</td>
<td>Shared Variable and Data Structure</td>
</tr>
</tbody>
</table>
On the hand, it requires a near coordination amongst the logical shared memory administration and the method that permit distributed shared memory was a prerequisite. Supplementary, the setup latency is too one of the dynamic component in an attempt to develop the protocols. This software based distributed virtual memory architecture, taking various benefits as below:

- This shared memory offers large virtual memory address space.
- In this, kind of architecture there is healthy extension to the addition of more process sites.
- With this distributed memory system fundamental message passing amongst the site will persist invisible to its users.
- Distributed shared memory architect also supports complex data structure and large shared contents.
- It is usually less expensive in comparison with multi computer structures.
- This DSM constructs is more portable because it’s using some common interfaces.
- Finally, preserve to its developer from transmission of primitives between various sites.

The inspiration of this project was to learn, understand and implementation of the novel distinct concept of distributed memory for multi computer architecture, process collaborations, novel DSM algorithm implementation with granularity selection and the shared memory protocols which are elaborate throughout. This exploration, the aforesaid aims have been significantly obtained. This architecture may be incorporated into various applications like gram panchayat, where there are central facility for people in smart village applications, different smart city applications, vehicle registration system, weather forecasting of different area, information system (Medical, Agriculture, and Industry etc.), hypermedia applications, distributed game playing etc. with certain application after specific modifications required to be done.
7.2 Future Enhancement

Future effort can be prepared to improve algorithm strategies to increase the number of nodes as a large scale DSM system. All will perform concurrent access to shared data items.

This work can be upgraded to optimize memory controller activities, respectively, to design issues that will add more benefits to distributed shared memory management. It can manage more no of processors simultaneously, increased execution speed and also provide security.

Further strength can be more to escalate the consistency mechanism of system to make the project more reliable against the failure.

Shared data organization can be optimized to arrange data more efficiently for various applications and environment.

Finally, this work can be extended or enhanced by focusing on shared data contents. It can create virtual shared address space, but having some limitation. Some limited number of data can be shared across the system. More effort can be added to remove this limitation.