7.1 CONCLUSION

In this work it has been concluded that the crawling over the complete web is a difficult task, and crawlers have to be tricky enough and reliable to perform the crawling process efficiently and reliably. A crawler has to deal with billions of web pages and their dynamic nature that puts unnecessary load on the network. Building an efficient and effective web crawler is a non-trivial task. Selection of right strategies and building an effective architecture will lead to the implementation of a highly efficient web crawler application. It has also been discussed that the web crawling techniques in use differs in their crawling mechanism.

The proposed secured frequency regulated migrating web crawler has been designed and developed and, effectively achieves the following objectives:-

- **Downloading process:** In place of having single and centralized crawling process, ecology of the migrating crawling agents is implemented to work in distributed manner to complete the crawling process in time.

- **Scalable:** Being distributed in nature, the number of hosts may be increased, that makes it scalable in nature and can cope up efficiently even with growing web size.

- **Migrating Crawling agent’s frequency regulation:** This work presents that revisiting to a website can further be improved by considering the interest of users shown for specifics websites. The websites for which users show more interest be crawled at a faster rate as compared to those that are less or rarely surfed by the users.

- **Network-load reduction:** In this work, migrating crawling agents are used that are capable of roaming the world wide web, interacting with web servers that hosts web pages, gathering information on behalf of its owner and coming back having performed the duties set by its user. Such access minimizes network utilization and also keeps up with document changes.
- Managing Volatile web contents: In this approach, migrants after moving to the web servers downloads the .TVI (table of variable information) file only for maintaining the freshness of search engine repository. The preliminary experimental results show the reduction in network load by a fraction of 95% approximately in comparison to centralized approach and the network load reduced by a fraction of 75% approximately in comparison to migrating crawling approach.

- Perspective term based index construction: In this work, an improvement in the index construction is proposed, in which related terms based on perception (i.e. viewpoint) of the user are being taken into account. This will help the search engines to provide better results to the user based on his mental vision.

- Reliability based Security: This work presents a reliability based approach to resolve the issue of security. It provides a restricted secured environment to the migrating agent and its restriction be decreased in incremental manner as reliability of the agent increases. It is a remote platform oriented approach that is helpful in maintaining security of remote platform, migrant as well as data it carries.

7.2 SCOPE OF FUTURE WORK

The future trends in the development of secured migrating crawling agents lie in following areas such as:-

- Tracking mobile agent locations: To find the current location of mobile agent while it is roaming around on the web.

- Inter agent system communication: Establishing communication, collaboration and cooperation between roaming mobile agents.

- Agent Monitoring: Monitoring the flow of information and execution of a running mobile agent.

- Mutual authentication: Establishing mutual authentication between mobile agent and the remote host for security purposes.

- Real-time detection of attacks: To detect attacks on mobile agents while it is on the job.
• **Use of Natural Language Processing:** The natural language processing may be used in designing better user interface to provide better results to the user.

• **Performance and Reusability:** To design migrating agents of versatile nature for several purposes.

• **Route determination:** To find the optimum path for mobile agent to move forward.

• **Tracing geographically nearest servers:** Finding geographically nearest servers that may be traversed by single mobile agent.