**CHAPTER 8**

**CONCLUSION AND FUTURE ENHANCEMENTS**

**8.1 Conclusion:**

A water quality prediction system that utilizes the Internet of Things (IoT) and machine learning can provide valuable insights into the safety and sustainability of our water resources. By collecting and analyzing data from various sensors and sources, such a system can predict changes in water quality and identify potential issues before they become major problems. The integration of IoT devices, such as pH sensors and turbidity sensors, can provide continuous monitoring of water quality in real-time. Machine learning algorithms can then be used to analyze this data and predict future trends or issues. This can help water treatment facilities and environmental agencies make informed decisions about water management and ensure the safety of our water resources. Overall, a water quality prediction system using IoT and machine learning has the potential to revolutionize the way we manage and protect our water resources. It can help to ensure the sustainability of our water supply, protect the health of aquatic life, and promote the overall well-being of our communities.

**8.2 Future Enhancements:**

There are several potential future enhancements for water quality management using internet of things and machine learning:

1. Integration with other systems: The system could be integrated with other water management systems, such as water treatment plants and distribution networks, to create a more comprehensive water management system.

2. Expansion of sensor capabilities: The system could be expanded to include additional sensors for detecting other water quality parameters such as dissolved oxygen, conductivity, and total dissolved solids.

3. Use of advanced machine learning techniques: The system could incorporate advanced machine learning techniques such as deep learning and neural networks to improve the accuracy and reliability of the data.

4. Cloud-based data storage and analysis: The data collected by the system could be stored in the cloud, allowing for easier access and analysis of the data by water management professionals and researchers.

5. Predictive modelling: The system could use machine learning algorithms to predict future water quality trends based on historical data, enabling proactive management and mitigation of potential issues.

6. Autonomous decision-making: The system could be designed to make autonomous decisions based on the water quality data collected, such as adjusting water treatment processes or alerting water management professionals in case of abnormal readings.

Overall, future enhancements of water quality management using internet of things and machine learning could lead to more efficient and effective water management systems, improving the safety and sustainability of our water resources.