Water pollution, stemming from industrial waste, sewage, and other pollutants like fertilizers and plastics, contaminates water sources, harming biodiversity and human health. This necessitates effective monitoring. A smart water quality monitoring system, leveraging IoT technology and various sensors (pH, turbidity, temperature, conductivity, etc.), is proposed. This system measures key water parameters, analyzes data in real-time, and transmits information to the cloud. The system's hardware comprises sensors, an Arduino microcontroller (ATMEGA328) for data conversion, an LCD display, and a Wi-Fi module for cloud connectivity. Testing with different water samples demonstrated the system's ability to classify water potability. While advancements exist, future work focuses on incorporating advanced sensors and communication technologies for improved water safety.