**CHAPTER 3**

**3.1 Research Approach**

The ultimate aim is to build a water level detection using ultrasonic sensor to monitor the rivers in a community and develop a web and SMS application as an early warning system that provides essential information to the local communities and concern agencies.

An SMS approach was used for transmitting data from the monitoring system to the computer server and for sending notification to the concern stakeholders. The SMS application was installed in the computer server to process the received data and make proper action. The application also implements fuzzy logic algorithm for decision making. The inputs of the algorithm are the water level status coming from the two monitoring systems sent through SMS. A threshold value was set in the two-monitoring system as basis for the Arduino to trigger the GSM module to send an SMS to the computer server. Then the developed program installed in the computer server send an SMS notification to the concern stakeholders and uploads an update post in the developed web-based monitoring system. After the development of the prototype, the model had undergone several tests and experimentations to check the effectiveness of the system.