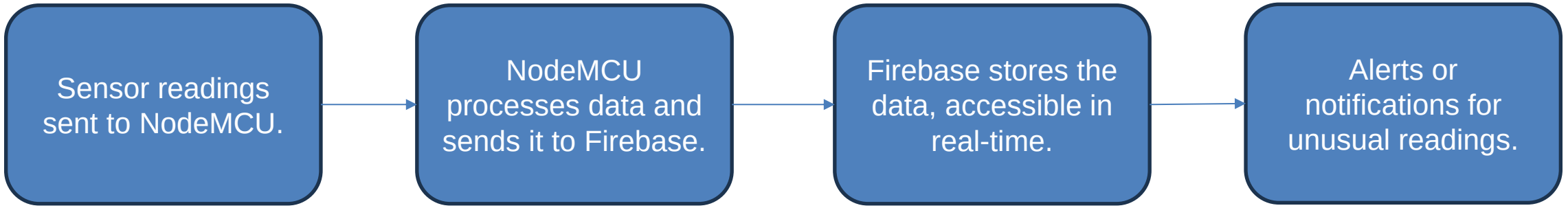
TITLE PAGE

- **Hackathon name- ElectroForge**
- **Problem Statement Title- IoT based Water Quality Meter**
- **Theme- IoT**
- **Team Name- Circuit Mind**
- **Team Leader- R Shri Charan**
- **Organising Club- Connexion**

❖Proposed Solution (Describe your Idea/Solution/Prototype)



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Project Idea & Approach

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- **Step 1**: Set up NodeMCU to transfer mock sensor data.
- **Step 2**: Write an algorithm to generate mock sensor data.
- **Step 3**: Configure Firebase and establish data connection.
- **Step 4**: Send data to Firebase in JSON format.
- **Step 5**: Display data on a web dashboard. (Using React)
- **Step 6**: Store data in sqlite database

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Key Innovation

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This project provides a low cost solution to monitor water quality in remote areas using Cutting Edge facilities to view detailed water quality status.

Potential Challenges and solutions:

- **Challenge**: Sensor calibration for accuracy.
- **Solution**: Regularly calibrate sensors using standard solutions.
- **Challenge**: Stable WiFi connectivity.
- **Solution**: Use a backup storage (e.g., SD card) if WiFi fails.

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Product Potential & business Case

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- **Real-Time Monitoring**: Immediate access to water quality data.
- **Cost-Effective**: Low-cost components make it affordable.
- **Portable**: Compact device suitable for various environments.
- **Customizable**: Easily add more sensors or additional features.

Use cases:

1. Health and Safety
2. Environmental Protection
3. Agriculture and Aquaculture
4. Early Warning and Prevention

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Technological Frameworks used

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- **NodeMCU**: For WiFi connectivity and processing.
- **Sensors**: pH sensor, TDS sensor, Temperature sensor. (Mock Sensors)
- **Firebase**: To store and visualize real-time data.
- **React**: To present the water quality status to the users.
- **Express.js:** To store data in database
- **Sqlite:** To store sensor data(historical data)