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Self Healing Water Networks

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1 PROBLEM STATEMENT

In the communications world, Self-healing networks are those that are architected in a manner that they can withstand a failure in their transmission paths.
Can we apply those concepts to the "water networks"?
You are to design an app that helps in this "self-healing" process by collating real-time data from sensors monitoring water flow and water quality to provide analysis of water resources and usage in an area, along with support for decisions on managing water sources.

2 PROPOSAL

- Collect data on purity of water.
- Do time vs purity, water pressure vs time analysis.
- Analyse water consumption trends with time of the day.
- Collect data when water is got through tankers. Analyse it.
- Analyse usage trends across buildings (Academic, hostels, cafeteria) at various granularity levels. Activities include watering plants, cleaning utensils, washrooms and toilets, refilling lake, cleaning, cooking, drinking.
- Analyse whether using recycled water for gardening etc. will solve the water issue.
- Controlling of actuators through authorized mobile devices.
- Notifications to the concerned operational personnel regarding events like

  - Abnormal chemical levels in water.
  - Change in water table level.
  - Regarding running taps and leakages.

2.1 Analytics

Followint reports will be generated.

- Get the data of number of students in campus and plot the water consumption vs no of students in campus.
- Analyse the peaks and troughs in the usage of water.
- Get weather data from data.gov.in or Google and compare it with water usage in the campus.
- Get data of how long the motor is kept on. Get the electricity usage of the motors. Analyse usage of electricity with hardness of water.
- Analyse monthly water bill.

3 Identified Problems

- Lack of clarity on number and location of sensors.
- Integration points are not clear.
- Scope and requirements are unclear.