

Self Healing Water Networks

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1 ASSUMPTIONS

- Water level sensors in the borewell, quality sensors in the borewell, flow/pressure sensors at various points in the networks
- Scada like system with a ODMS(A historian)

2 USE CASES

Use Case 1	Dashboard of water usage and related patterns
<i>Actors</i>	Management, Admins

Activities

- Will be presented with a dashboard on water usage patterns across buildings(hostels, Academic block, cafeteria) and activities(Cooking, gardening, cleaning, etc) with options to drill down to specific granularity.
- Reports on electricity consumption due to pumping.
- Reports on water consumption vs number of students in campus.
- Analysis of peaks and troughs in the usage of water.
- Water usage in the campus w.r.t weather
- Usage pattern of water throughout the day and hence pressure at which water needs to be pumped.
- Water requirement prediction in the coming days vs predicted levels in the storage.

Use case 2	Customizable Alerts and Notifications
<i>Actors</i>	Admin/Estate manager
<i>Activities</i>	<ul style="list-style-type: none">• Will be provided with alerts for<ul style="list-style-type: none">– Probable leaks– Inefficient pumping– Water contamination or excessive chemical levels in water– Inefficient pressure or excessive pressure at outlet points

Use case 3	Input usage data through mobile/web interface
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<i>Actors</i>	Student, Housekeeping incharge
<i>Activities</i>	<ul style="list-style-type: none"> • This is planned for the case where there aren't extensive usage collection sensors throughout the network. • This will be a web/mobile interface through which actors are going to be submitting data about their normal usage. • The submission of data need not be done on a daily basis. The actors can submit data detailing their regular activities and the typical water consumption for each, say 2 buckets for bath daily, 5 buckets for washing clothes once in three days. They will be able to link their usage behaviour to specific time intervals(typically days, weeks or months)
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Use case 4	Reporting leaks through mobile/web interface
<i>Actors</i>	Student
<i>Activities</i>	<ul style="list-style-type: none"> • Students can report leaks in the respective wash-rooms.
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Use case 5	A geospatial representation of the water distribution system
<i>Actors</i>	Admin/Estate Manager

<i>Activities</i>	<ul style="list-style-type: none"> • Graphical representation of whole water network. • Key health or performance indicators to represent status of each asset. Example pressure or flow rate of water flowing through a section of the pipe. • Ability to access historical data for each asset. • Role based access: Different users have different privileges and access to data based on their role.
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Use case 6	Notifications for watering of plants
<i>Actors</i>	Housekeeping Staff
<i>Activities</i>	<ul style="list-style-type: none"> • Based on data from soil sensor and weather forecast, send notifications for watering the plants.

Use case 7	Issue Tracker
<i>Actors</i>	Students, Admin, Staff
<i>Activities</i>	<ul style="list-style-type: none"> • Reporting and tracking of issues.
