

GeyserSense



The Intelligent Geyser System



UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

WRC RDI Symposium and Water-tech Summit
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MTN Mobile Intelligence lab - mtn.sun.ac.za



Background



Over 5.4 million geysers in SA

Combined annually

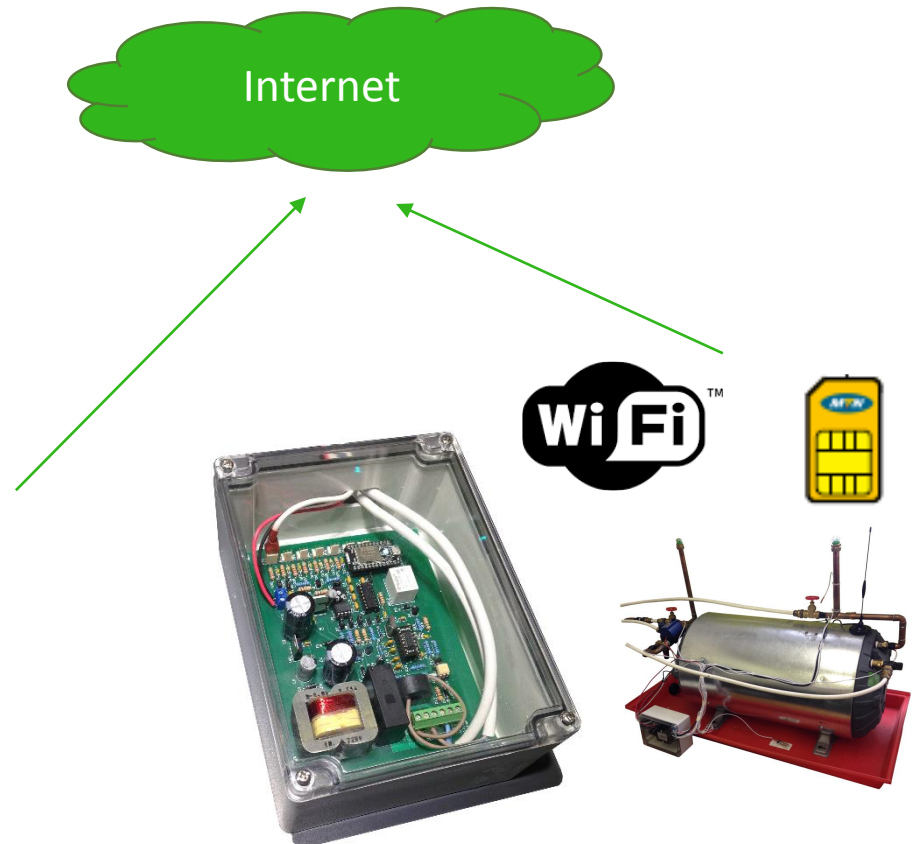
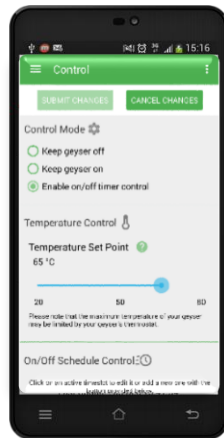
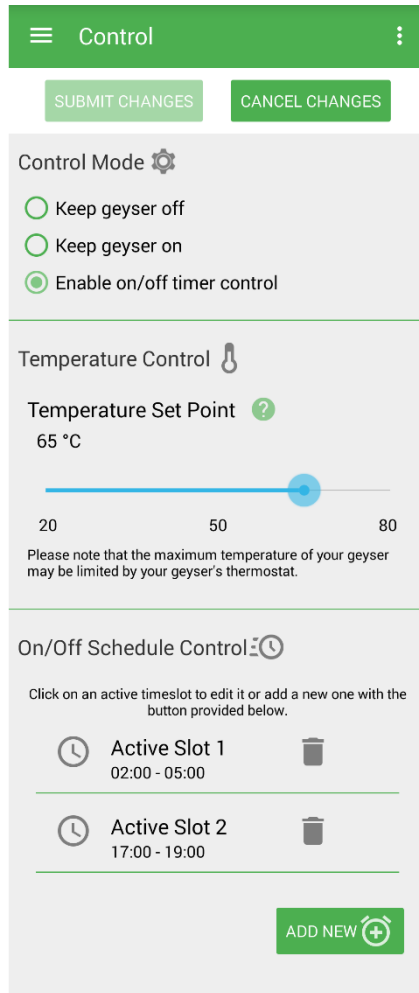
- consume R 30 billion in energy

- passes 500 billion litres of warm H₂O

- ca. R 13 billion in damages from bursts

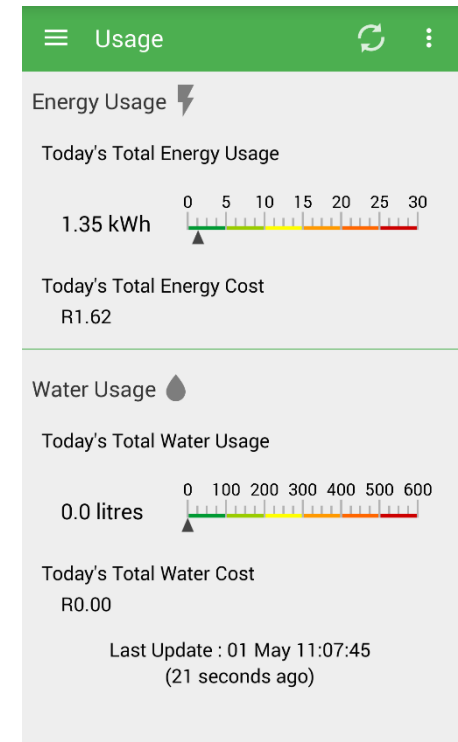
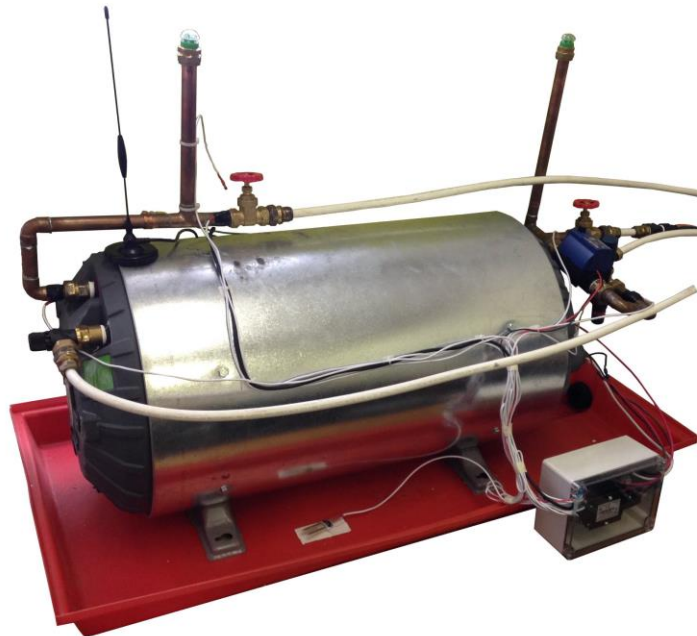
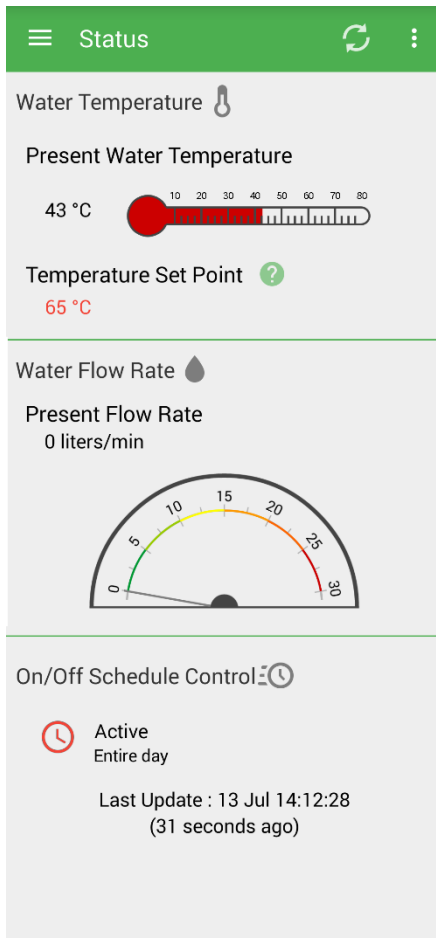
Leverage cost of energy and bursts to create H₂O awareness

Imagine... Controlling



Protection built-in to mitigate geyser bursts

Imagine... Seeing



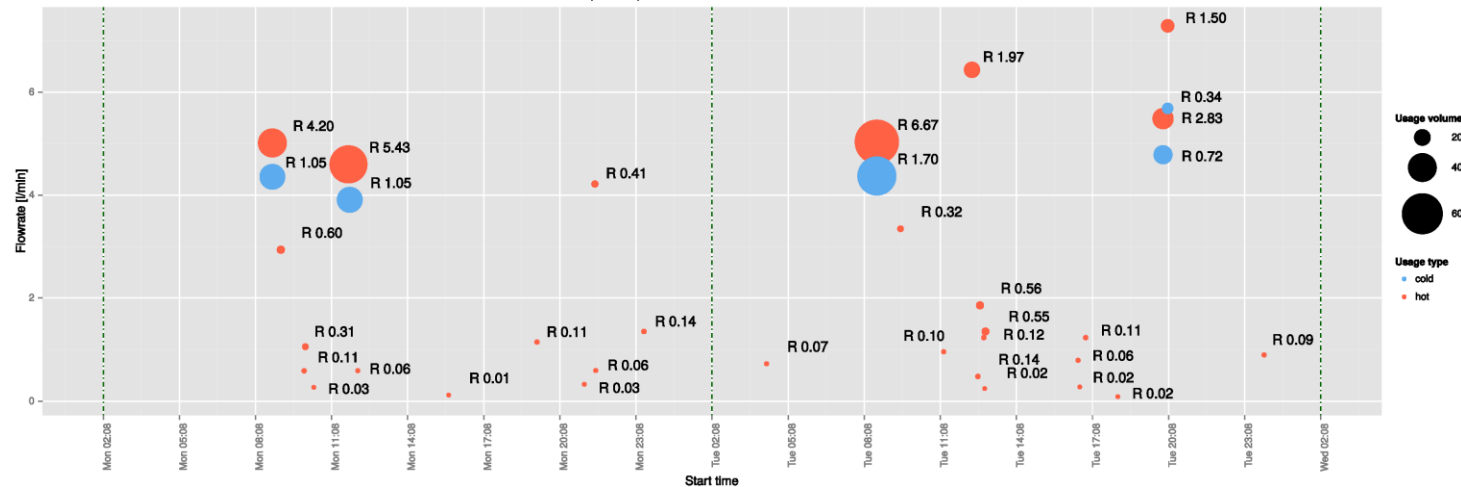
Imagine... Knowing



Daily Geyser Usage Report

Start time	Duration	Litres	kWh	Water Cost	Energy Cost	Total Cost
06:53	3 min	16	0.57	R 0.48	R 0.74	R 1.22
07:09	5 min	25.5	0.79	R 0.77	R 1.03	R 1.79
07:51	10 min	56.5	1.61	R 1.70	R 2.09	R 3.79
13:28	10 min	12	0.30	R 0.36	R 0.39	R 0.75
19:50	4 min	15.5	0.34	R 0.47	R 0.44	R 0.91
TOTAL		125.5	3.61	R 3.77	R 4.69	R 8.46

Estimated price per event (on Flowrate vs Time)



Imagine... Intelligence

Optimise

Please select a day that most accurately represents your typical daily usage.

Date10 DEC

ANALYSE

Energy Usage Without Optimisation : 6.166 kWh
Energy Usage With Optimisation : 3.466 kWh

Usage Events

Event 1

Time : 05:55
Duration : 4 minutes

Include? ☒

Event 2

Time : 06:27
Duration : 4 minutes

Include? ☒

Event 3

Time : 11:07

Include? ☐

Event 6

Time : 16:57
Duration : 5 minutes

Include? ☐

Event 7

Time : 19:18
Duration : 5 minutes

Include? ☒

RECALCULATE

Optimised On/Off Schedule


Active Slot 1

Active Time : 03:45 - 06:15


Active Slot 2

Active Time : 17:15 - 19:15

IMPLEMENT SETTINGS

Daily Energy Consumption will remain the same.


MORE

Daily Energy Consumption will decrease by 0.594kWh

LESS

Summary of Changes

Control Mode : None
Set Temperature : Decreased by 5°C
Schedule : Active time decreased by 0 hours and 30 minutes

Daily Energy Consumption will increase by 2.178kWh

LESS

Summary of Changes

Control Mode : Changed to Keep On
Set Temperature : Thermostat Control
Schedule : Active time increased by 21 hours and 45 minutes

That's it folks



- Future
 - Chief Albert Luthuli Munic, Mpumalanga
 - Mkhondo, Mpumalanga
- Questions?