

GeyserSense



The Intelligent Geyser System



UNIVERSITEIT
STELLENBOSCH
UNIVERSITY

WRC RDI Symposium and Water-tech Summit
18 September 2015

MJ Booysen et al. – Stellenbosch University

MTN Mobile Intelligence lab - mtn.sun.ac.za



Background



Over 5.4 million geysers in SA

Combined annually

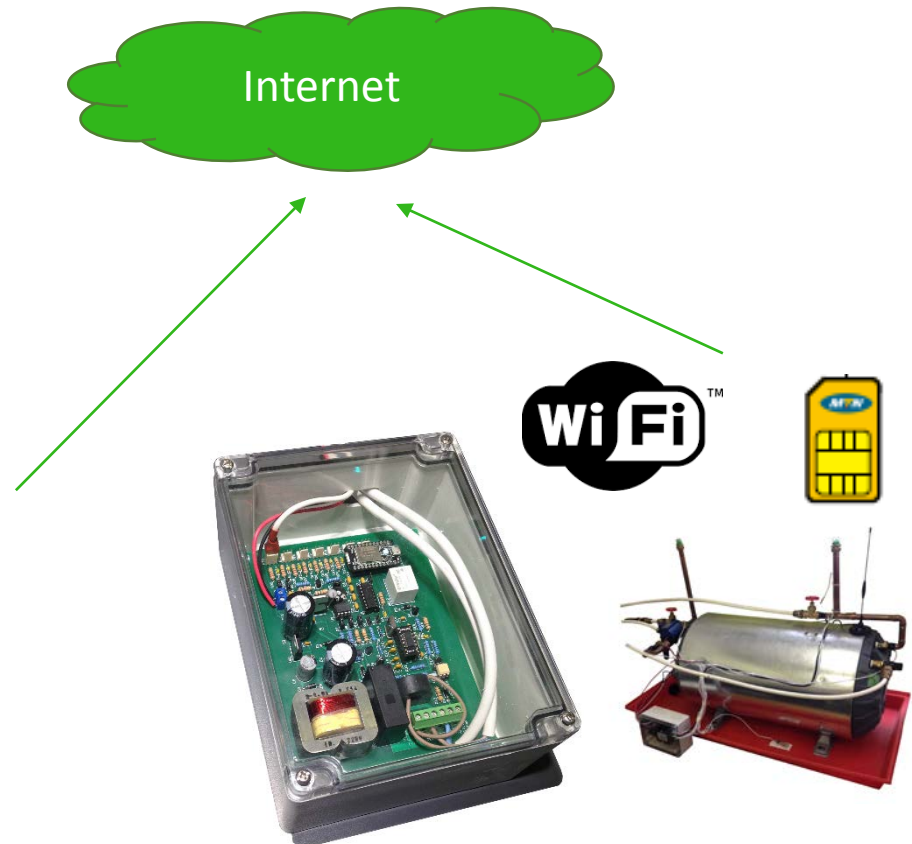
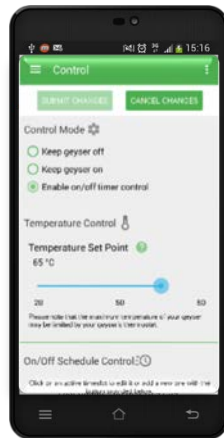
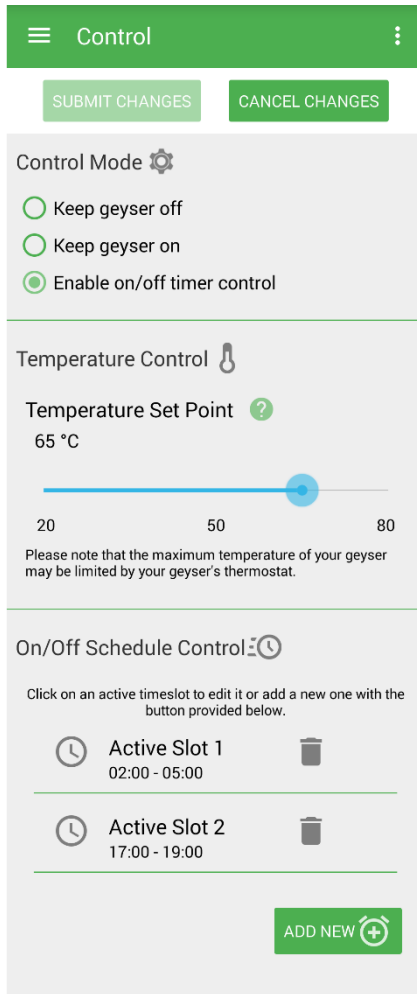
consume R 30 billion in energy

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

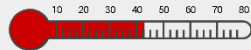
Imagine... Seeing



☰ Status ↻ ⋮

Water Temperature 🌡️

Present Water Temperature

43 °C 

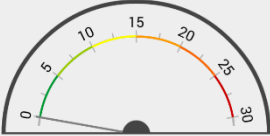
Temperature Set Point ?

65 °C

Water Flow Rate 💧

Present Flow Rate

0 liters/min



On/Off Schedule Control 🕒

🕒 Active
Entire day

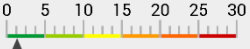
Last Update : 13 Jul 14:12:28
(31 seconds ago)



☰ Usage ↻ ⋮

Energy Usage ⚡

Today's Total Energy Usage


1.35 kWh 

Today's Total Energy Cost

R1.62

Water Usage 💧

Today's Total Water Usage

0.0 litres 

Today's Total Water Cost

R0.00

Last Update : 01 May 11:07:45
(21 seconds ago)

Imagine... Intelligence



Optimise

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

Date: 10 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? <input checked="" type="checkbox"/>
Event 2 Time : 06:27 Duration : 4 minutes	Include? <input checked="" type="checkbox"/>
Event 3 Time : 11:07	Include? <input type="checkbox"/>
Event 6 Time : 16:57 Duration : 5 minutes	Include? <input type="checkbox"/>
Event 7 Time : 19:18 Duration : 5 minutes	Include? <input checked="" type="checkbox"/>

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 Municipality, Mpumalanga
 - Mkhondo, Mpumalanga
- Questions?