A Low-Cost Hydration Indicator
Developed for Urinals in Developing Countries

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World Water Congress

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Concept Genesis:

- 2.4 billion people in the world without adequate sanitation.
- Bottom of the pyramid individuals do not value sanitation.
- People avoid drinking water in developing countries to avoid visiting inadequate toilet facilities or to avoid drinking contaminated water.

Wellbeing Monitor:

- Change of value proposition.
- Suitable for urinals, urine diverting toilets or container based systems.
- Low cost solution (~$10).
The Need
The Need

Ethnographic Study in Kumasi Ghana (Publication to come).

Findings:
• Fear of disease.
• Fear of heat.
• Fear of waste from others.
• Cannot perceive owning a toilet without the space.
• Value is utility.

Literature:
• People avoid drinking water in developing countries to avoid visiting inadequate toilet facilities or to avoid drinking contaminated water (Drangert, 2003).
• The negative associations of dehydration are widely known.

Can we change the meaning of toilet to be more desirable and encourage people to drink clean water?
Wellbeing Monitor

The Proof of Concept Development

Hydration Parameters from Urine
(European Hydration Institute, 2017)

- Specific Gravity.
- Electrical Conductivity.
- Osmolality.
- Colour.
- Volume.
- Frequency.

Effectiveness:
- Correct Positives ~ 82%
- False Positives ~ 5%
- Correct Negatives ~ 10%
- False Negatives ~ 3%

~ 92% correct readings from initial tests

Proof of Concept

- 12 Prototypes.
- 20 versions of the software.
- Tested on over 100 urine samples from a variety of donors.
- Currently patenting is underway.
Human User Testing
Assessing the receptiveness of new innovation.

The trend of aspirational technologies is towards being healthy and informed – coupled with other wearables and a smart drinks bottle.

The manifestation of the concept as a smell trap for a waterless urinal.

The traffic light system for informing hydration status.

A smartphone application for long-term tracking or predictive analysis.
Thank you

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