



A Low-Cost Hydration Indicator

Developed for Urinals in Developing Countries

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World Water Congress

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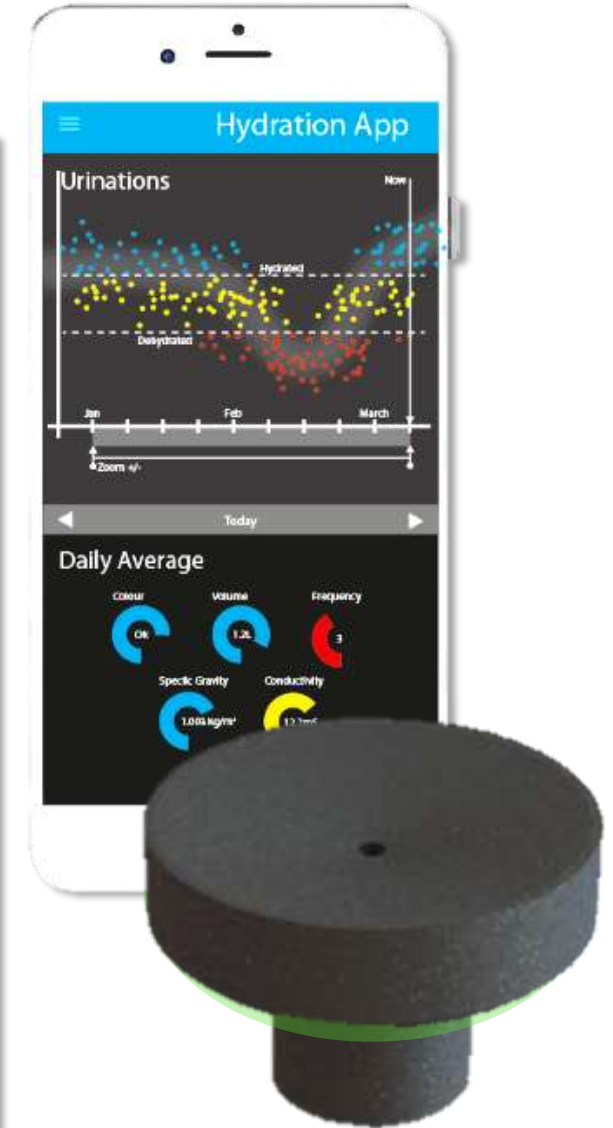
The Wellbeing Monitor

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).





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The Need

Ethnographic Study in Kumasi Ghana (Publication to come).

Findings:

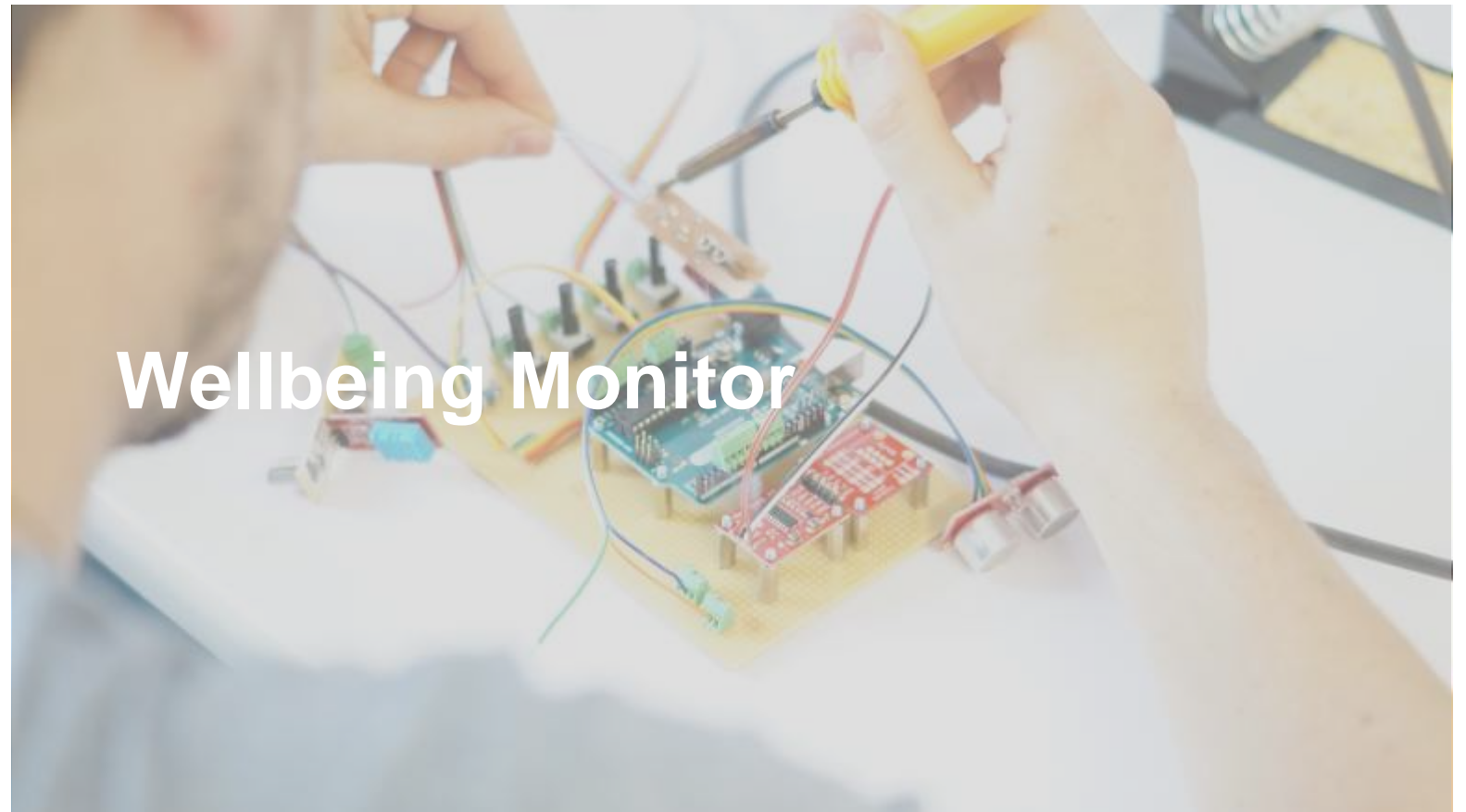
- Fear of disease.
- Fear of heat.
- Fear of waste from others.
- Cannot perceive owning a toilet without the space.
- Value is utility.

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?





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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%

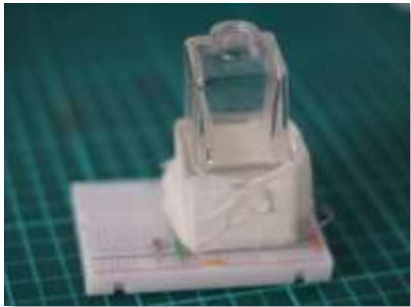
Correct Negatives ~ 10%

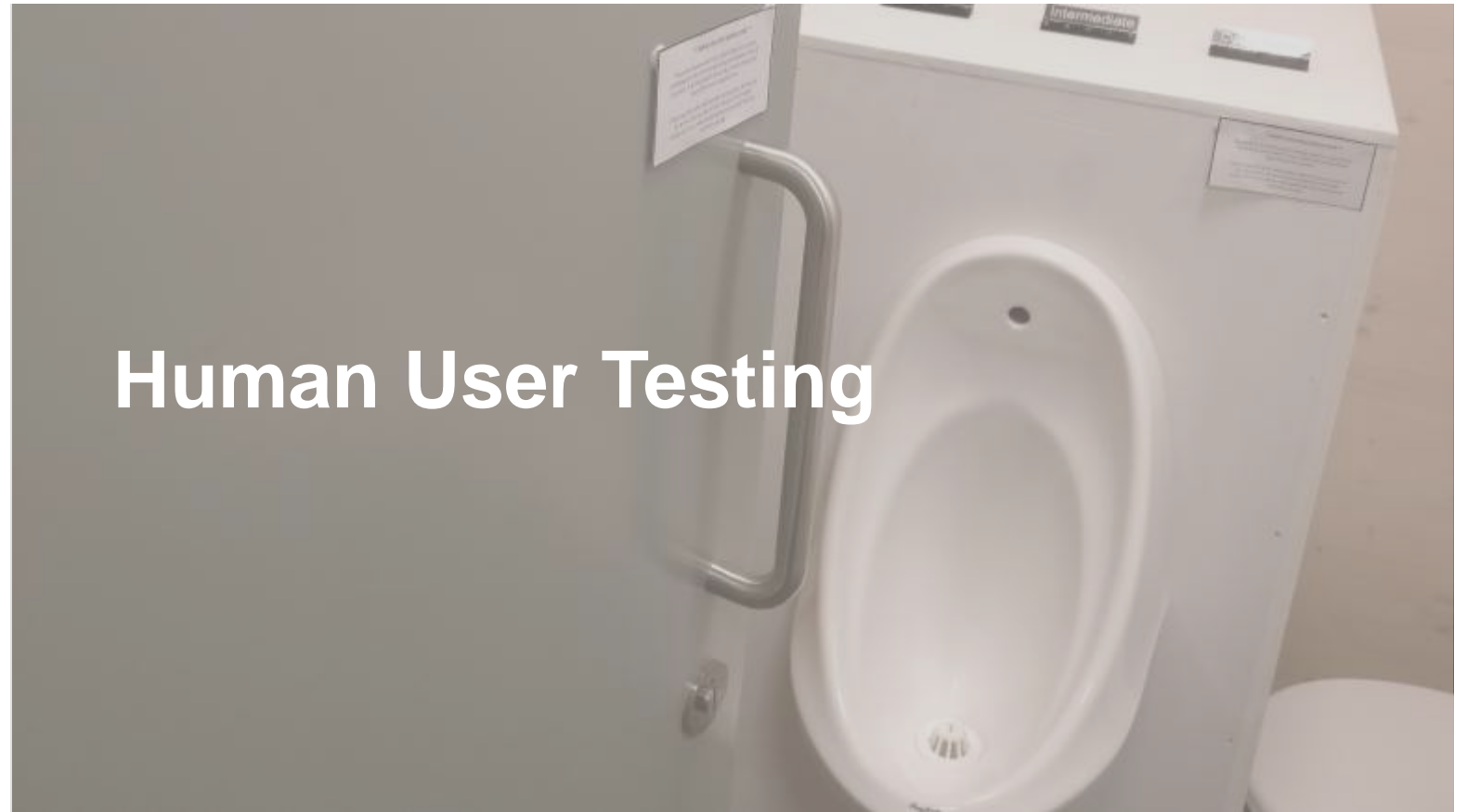
False Negatives ~ 3%

~ 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.





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Human User Testing

Assessing the receptiveness of new innovation.



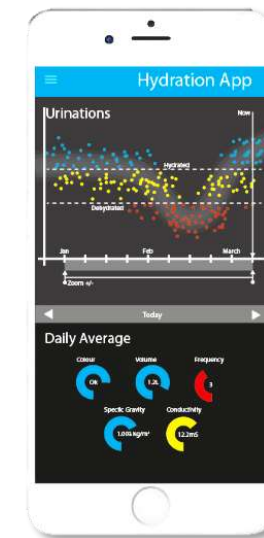
The manifestation of the concept as a smell trap for a waterless urinal.



The traffic light system for informing hydration status.



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



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



Thank you

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