# Tethys: Collecting Sensor Data Without Infrastructure or Trust

Lecture d'article et documentation scientifique

- Serigne Amsatou SEYE
- Carlos NEZOUT

Master 2 Génie Logiciel - Université de Bordeaux <u>Année universitaire:</u> 2018 - 2019 Responsable: M. Abdou Guermouche Encadrant: M. Serge Chaumette

# OUTLINE

- → Introduction
- → Paper Goals
- → Related Work
- → Contribution
- → Discussion
- → Conclusion

# INTRODUCTION

- What is Tethys?
- How does it work?

## PAPER GOALS

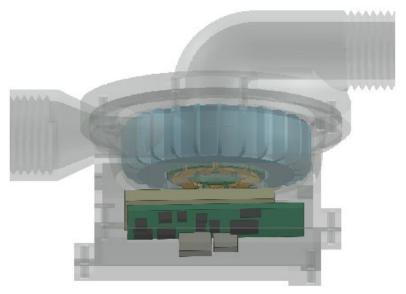
- lack of exploitable information to improve water consumption strategies
- data analysis target shared dormitories
- provide a reliable system to observe shower use patterns with fine granularity
- preserve occupant anonymity

# RELATED WORK

- Water sensing
- Delay-Tolerant Networking
- Security and Privacy

# **CONTRIBUTION**

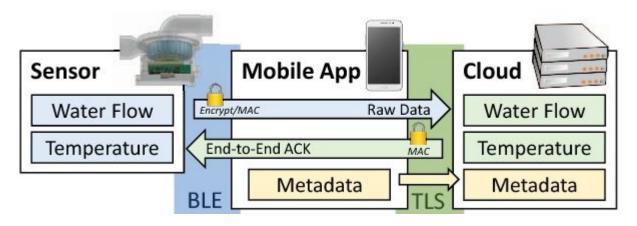
- A thoughtful system anticipating for almost any breakdown
  - Energy Supply self-powered
  - Waterproof Enclosure



Assembled Tethys Sensor (Source : Original Report)

#### CONTRIBUTION

- Decoupling from network infrastructure
- Provide End-to-End Security Process



Network design of Tethys (Source : Original report)

## CONTRIBUTION

- Data analysis over 3 residential halls during 2 weeks
- Identify consumer ratio that have bad showering behavior
- Gives some relevant results on energy harvesting and consumption

## DISCUSSION

#### Plus reviews:

- Independent of existing electrical infrastructure
- Supports and prevents several flaws
- Uses electromagnetic energy
- Uses BLE (Bluetooth Low Energy)

#### Minus reviews:

- Collection of their personal data
- Need an internet connection
- Loss of data in case of smartphone failure

#### CONCLUSION

- Perfect choice for dynamical collection and measurement of water flow with fine granularity
- Use policy promotes low energy consumption
- Preserves the confidentiality of the data collected
- Could be a reference in the data collection without access to the infrastructure