



WSPLC 2016 EDF-X-RENASAS Student Challenge

Rémi Dubaele – ECE Paris – Enedis Linky (PLC team)



Presentation

- **ECE Paris** student in 4th year of engineering french « grandes écoles » program
- Apprenticeship at **Enedis** since sept. 2015
- My activities :
 - Benchmark of G3-PLC modems
 - Evaluation of G3-PLC packet analyzers



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01 Introduction



A connected in-home Display



Enedis electricity meters

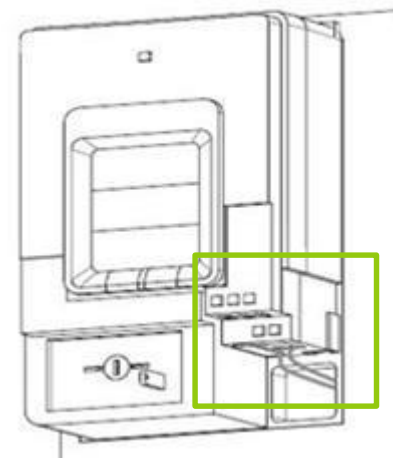


In-home Display

Enedis' electricity meters and connectivity

The **digital electric meters** provide live information about the electricity consumption through the **digital client interface**:

- Tariff
- Consumption data
 - Power consumed
 - History
- Overuse alert
- Message from the provider



02 In-home display for french electricity meters

Association of G3-PLC and LoRa communications for full live information about energy expenses

Context of this project

Legal context :

- French legislation requires electricity providers to offer in-home display for their precarious clients
- It also wants to enlarge its spreading to all household clients, all of them shall be able to buy one



→ Development of a cheap and easy-to-use in-home display

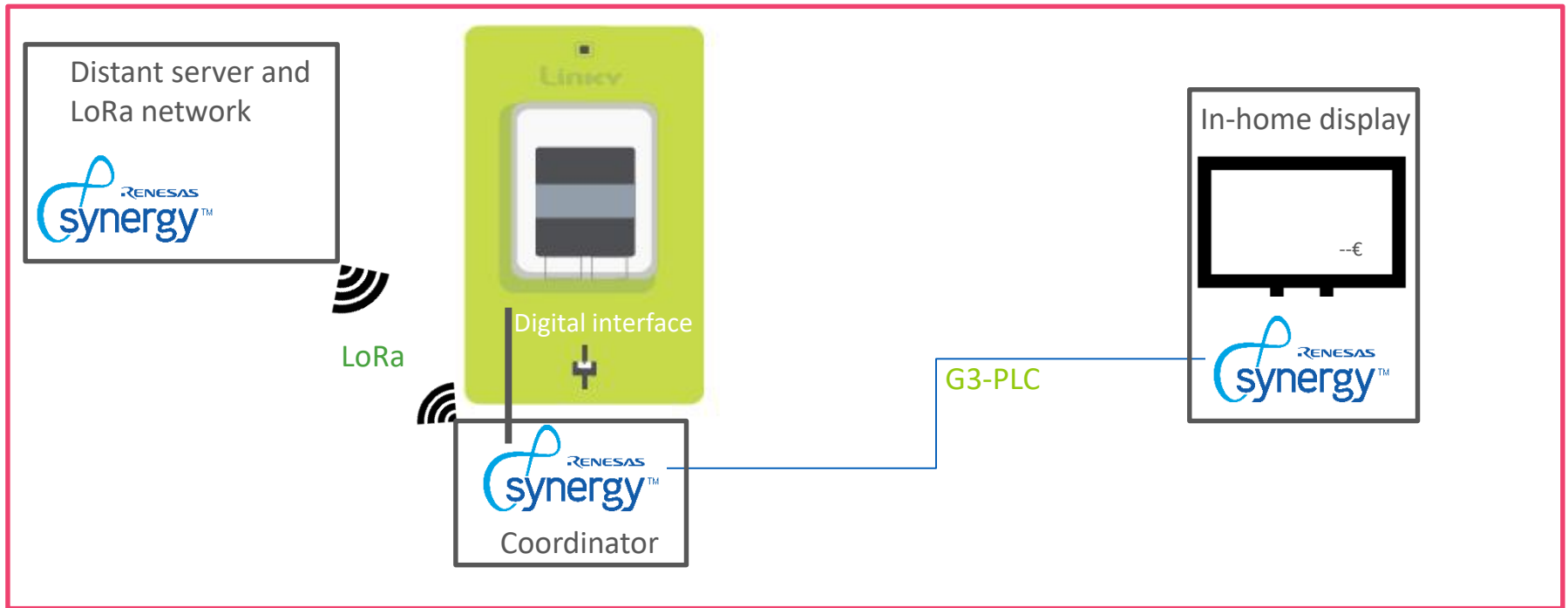
Principle of the project

A **in-home display** allows consumer to track their electricity consumption.

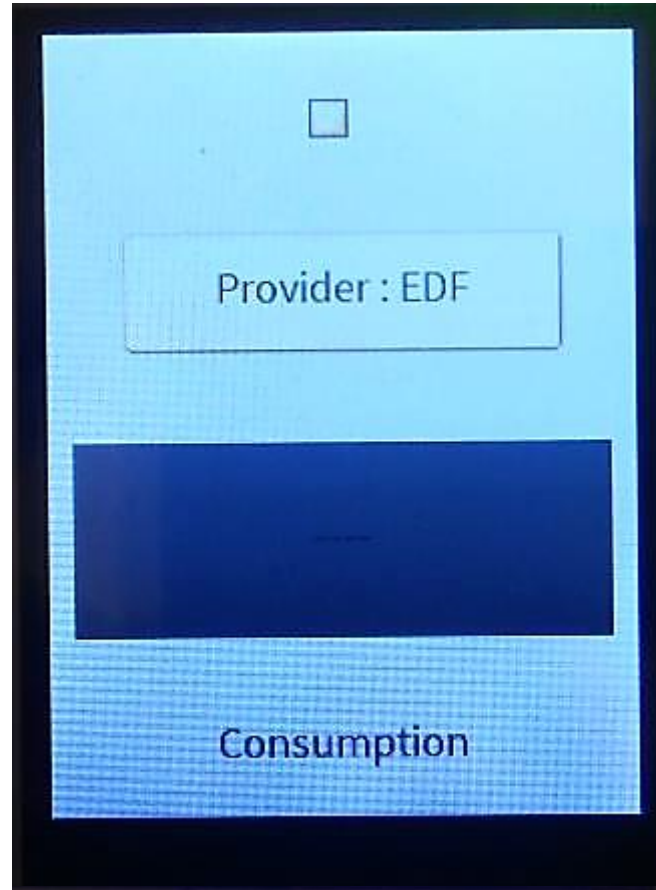
- A connected **in-home display** shows the current price of the electricity and the consumer bill
- G3-PLC : in-home connection that provides data to the display
 - Long range connection
 - Possibility of several access points
- LoRa : Internet connection through a public LoRaWan infrastructure
 - Source data from distant servers : electricity price, consumer data,...

03 Technical implementation and mock up realisation

Proposed system architecture



Implementation with Synergy eval kit



Graphical interface and user interactions

- Data actualization on user action : current price of the electricity and power consumed
- Touch screen control : easy-to-use interface
- Synergy GUIX framework
 - Image and animation management
 - Advanced touch screen interaction control



04 Demonstration

Perspective and possible improvements

Technical improvements :

- LoRaWAN implementation
- Data management protocol reinforcement

User interface improvement :

- Live data actualization (without user action)
- Data interpretation for better information to the customer

Perspective

- Build a full energy control system

05 Conclusion

Thanks





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