

# Machine-learning assisted control of wireless sensor networks

## Goals

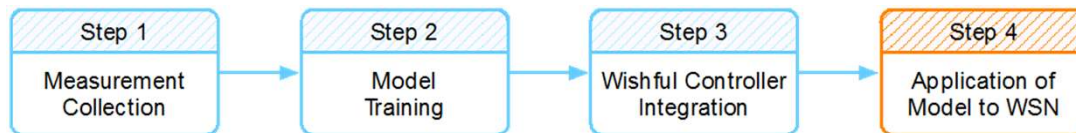
Apply machine learning methods and integrate them within the WiSHFUL framework to improve the network performance by

- deciding at runtime which RPL routing metric (ETX or OF0) should be applied
- deciding how the trickle timer of the RPL protocol should be configured

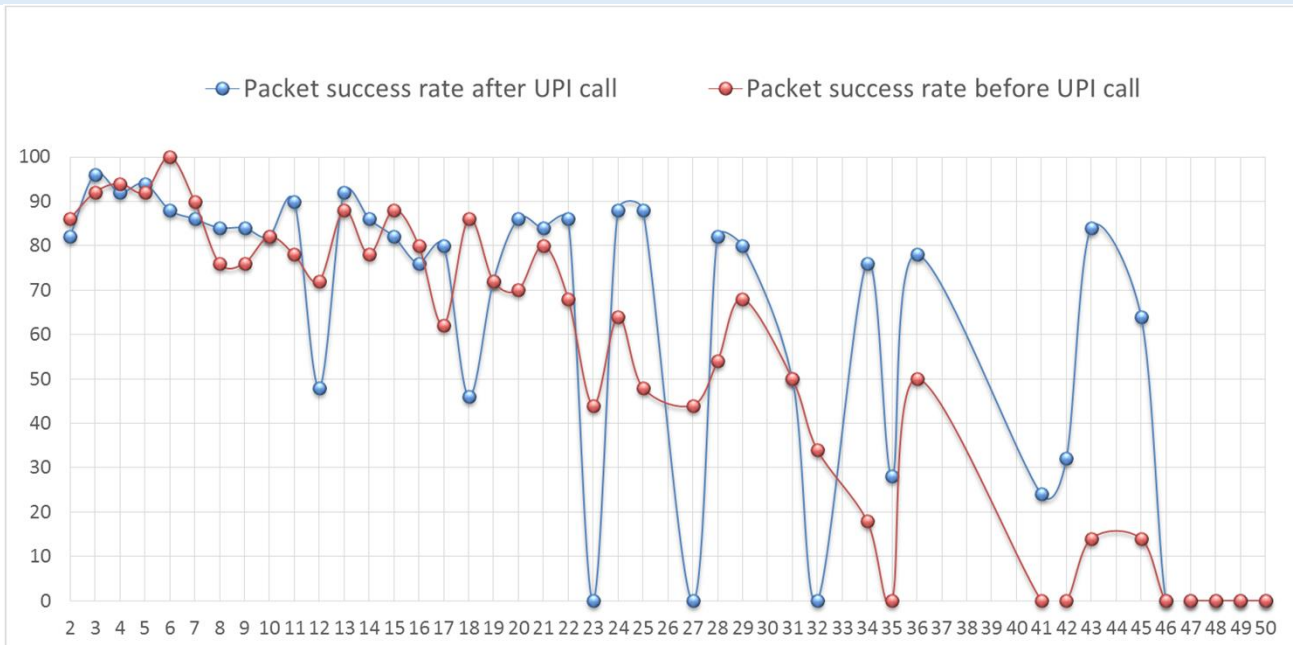
## Challenges

- To identify appropriate machine learning models for various WSN setups
- To apply the selected models to choose the optimal RPL configuration
- To enforce through use of WiSHFUL UPI calls the selected RPL configuration within the network

## Experiment setup



## Results



Improvement of packet success rate in a grid network of 50 motes

## Conclusions

- The clustering models implemented in Qiqbus are effective in finding the optimal RPL configuration in terms of packet success ratio
- This project provided to Modio with significant knowledge which will be capitalized during the development of a new product

## Feedback

- Thanks to the software tools and hardware provided by WiSHFUL we were able to define and implement a Qiqbus-based processing pipeline which Modio uses during the implementation of our new product for intelligent resource allocation