

Modelling IoT Application Requirements and Benchmarking IoT Middleware Platforms

Introduction

- The significant advances on the Internet of Things (IoT) technology have led to IoT applications being widely used in various scenarios
- Plethora of existing middleware platforms provide similar functionalities
- A challenge to choose the most suitable platform for implementing IoT applications

Motivating Scenario

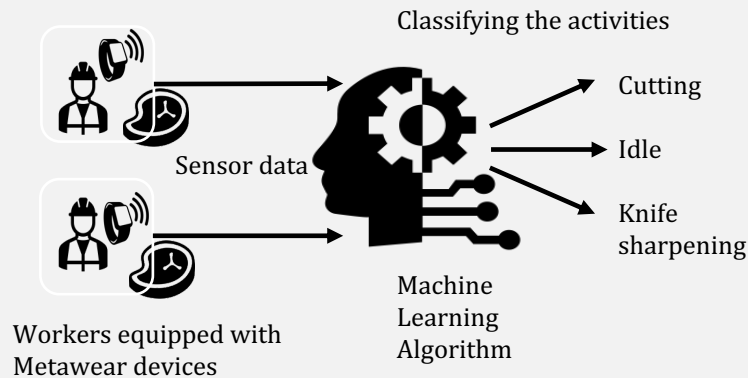


Fig 1: Application to improve productivity of factory workers

Proposed Framework

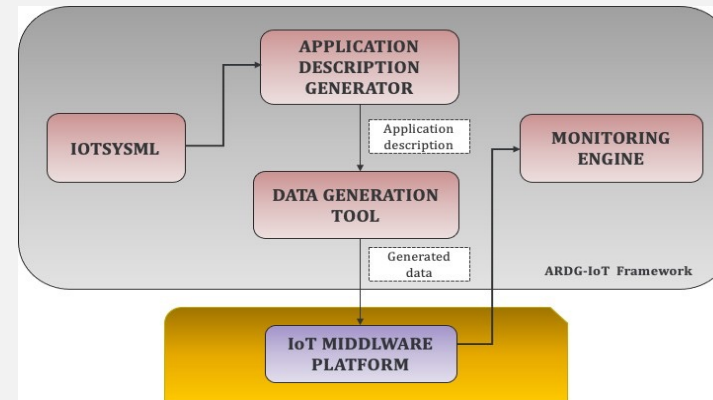


Fig 2: ARDG-IoT Framework

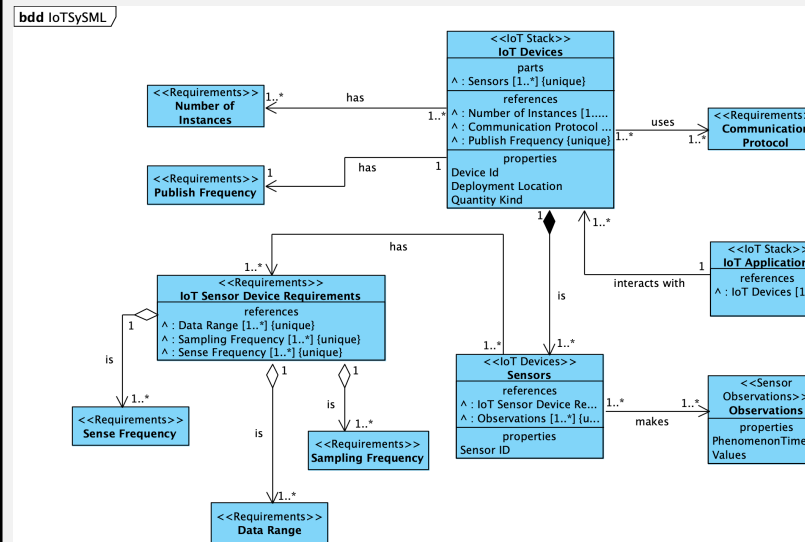


Fig 3: Model to represent the IoT Application Requirements

Results

ARDG-IoT can work with various configurations and different IoT middleware platforms

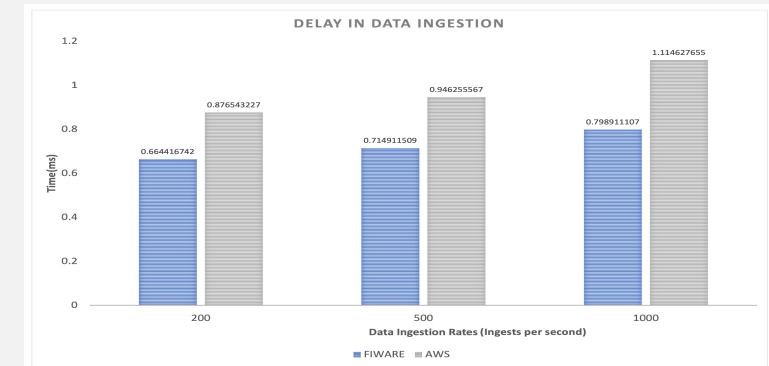


Fig 4: Comparing Data Ingestion Delay

Conclusion

- Step towards developing an integrated approach for conducting benchmarks
- Easy to use approach to conduct performance benchmarks
- As future work, we plan to extend the framework to include other aspects like generating benchmark queries and evaluate the framework with other application scenarios

References

- [1]. Forkan, A.R.M., Montori, F., Georgakopoulos, D., Jayaraman, P.P., Yavari, A. and Morshed, A., 2019, July. An industrial IoT solution for evaluating workers' performance via activity recognition. In *2019 IEEE 39th International Conference on Distributed Computing Systems (ICDCS)* (pp. 1393-1403). IEEE