UAV based SDN system for wireless sensor networks

ABSTRACT

Abstract goes here.

1 INTRODUCTION

Introduction goes here.

2 RELATED WORK

Introduction goes here.

3 ARCHITECTURE

The architecture of the UAV based SDN system for wireless sensor networks.

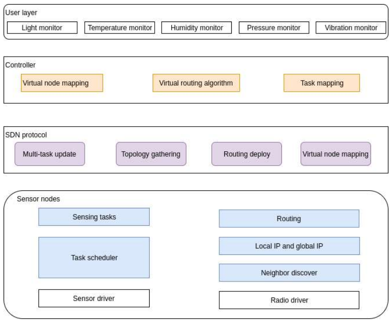


Figure 1: Architecture of the system.

4 NETWORK CONSTRUCTION

4.1 Sensor selection

Physical topology : uniform distribution (Density ffi).

Sensor selection algorithm:

1) A simple Algorithm: threshold -The distance between sensors && the overlapping of sensing area && the similar neighbor list.
2) SRSSS Algorithm (AAAI-16) - trained by an AI model based on the collected data.

Output : Redundant nodes

4.2 Topology Mapping

Redundant nodes are mapped to a virtual node. They can awaken each other according to their residual energy. When:

$$ResidualEnergy(i) \leq \xi \cdot ResidualEnergy(j) \qquad turn\ node\ i\ to\ node\ j$$

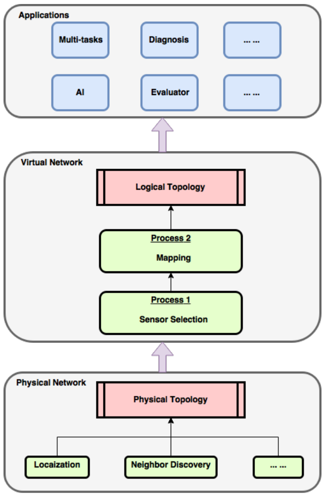


Figure 2: Implement modules.

These virtual nodes are called critical nodes in the logical topology while other nodes are called ordinary nodes.

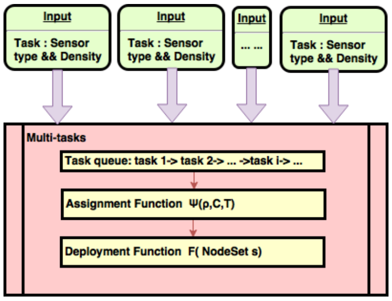
4.3 Logical routing

Critical nodes first (CNF) algorithm

5 APPLICATIONS

Design the following applications and provide APIs to users.

5.1 Multi-tasks



Input
Task : Sensor type && Density
Input
Task : Sensor type && Density
Input
... ...
Input
Task : Sensor type && Density
Multi-tasks
Task queue: task 1-> task 2-> ... ->task i-> ...
Assignment Function Ψ(ρ,C,T)
Deployment Function F(NodeSet s)

Figure 3: Multi-tasks.

Each task has a deployment density ρ.
Assign tasks to the sensors with less tasks first.
Assign tasks to critical nodes fitst

5.2 Evaluator

Provide APIs for users to update network algorithms through OTA.

Input: the algorithm function and its location/standard name(tell where to replace it)

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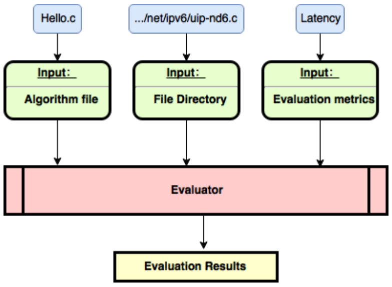

Figure 4: Evaluator.

Evaluate the performance of the new algorithm.

Input: the evaluation metrics

In our implementation, we will take neighbor discovery algorithms for experiments.

5.3 Diagnosis

5.4 AI

6 IMPLEMENTATION

Implementation goes here.

7 EVALUATION

Evaluation goes here.

8 CONCLUSION

Conclusion goes here.