

WiseNET



An Ultralow-Power Wireless Sensor Network Solution

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Introduction



- The WiseNET platform uses a codesign approach
- Reducing Power consumption require optimization across all layers
- Physical layer
 - Hardware Design to minimize power consumption
- MAC layer
 - MAC layer play major role in overall energy efficiency
 - combines a dedicated duty-cycled radio with WiseMAC
 - Simulation compare with other MACs

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Objective



- Hardware & software co-design to achieve the lowest possible power consumption
- Need for all three network operation modes
 - Infrastructure
 - Adhoc
 - Hybrid
- Introduce WiseMAC
- Implement WiseNET SoC sensor node

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Objective (cont')



- With one 1.5-V AA alkaline battery
 - 100 – 10 μ W for Node lifetime 2 – 7 year
- Commercially available consume tens mW
 - Node must sleep most of the time
 - Or duty cycle ~ 0.1 – 1 percent
 - Keeping low sleep mode current < battery leakage

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