Using DeCoT+ to Collect Data Under Interference

Category I: Data Collection for Condition Monitoring

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DeCoT+: Based on DeCoT [1]
Channel Hopping Mechanism: Scan-and-Lock

<table>
<thead>
<tr>
<th>Time</th>
<th>Channel C1</th>
<th>Channel C2</th>
<th>Channel C3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Transmit after Receiving or Transmitting</td>
<td>Transmit after Receiving or Transmitting</td>
<td>Transmit after Receiving or Transmitting</td>
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<tr>
<td></td>
<td>Transmit after Timeout</td>
<td>Transmit after Timeout</td>
<td>Transmit after Timeout</td>
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<tr>
<td></td>
<td>Overhear</td>
<td>Overhear</td>
<td>Overhear</td>
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<tr>
<td></td>
<td>Radio Off</td>
<td>Radio Off</td>
<td>Radio Off</td>
</tr>
</tbody>
</table>

DeCoT+: Based on DeCoT [1]
Decentralized Mechanism: Force-Initiated Mechanism

Interference unexpectedly partitions a CT-based network: Gray nodes would never synchronize with the host.

Force-Initiated mechanism is introduced to decentralize a CT-based network.

DeCoT+: Based on DeCoT [1]
Decentralized Mechanism: Force-Initiated Mechanism

Nodes in the partitioned network get synchronized with an agent. In the competition, all the source nodes work as agents.

DeCoT+: Nego-and-Action Framework

Force-Initiated mechanism in DeCoT

Synchronization Period: Initiated by the host

Force-Initiated Period: Initiated by the host and the synchronization agents simultaneously

Nego-and-Action framework in DeCoT+ is designed for long payloads
DeCoT+: Data Freezing Mechanism

An example, we assume that N3 has a packet to N20. The interference varies as the red dashed line.
Preliminary Evaluation

Reliability (under interference level 3)

Legend
M: message length (B)
L: layout
P: periodicity (ms)
J: interference level
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- Carlo Alberto Boano and Markus Schüß, Graz University of Technology, Austria

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Q & A

Thank you!

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