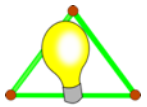
Open DC Grid Project

2020 October



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Agenda

- Set points / curves for droop control
- LIN bus communications update
- Related Standards / Industry Developments
- Next Meeting / Feedback

Set Points / Curves for Droop Control

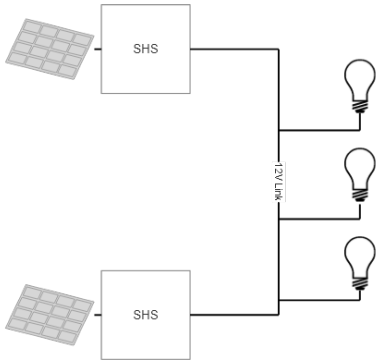
See Martin Jäger Presentation...

LIN Bus Protocols

* Modified link protocols over LIN physical layer
* Two versions:
  * Open PAYGO Link uses manager/worker polling
    * Working on small hardware networks
  * ODG uses carrier sense collision avoidance (peer-peer)
    * Working in simulation
    * Hardware implementation in progress
* Both use similar dynamic address assignment
  * Manager assigns address based on UID
  * Address is 4-bit hardware with 48?-bit MAC address

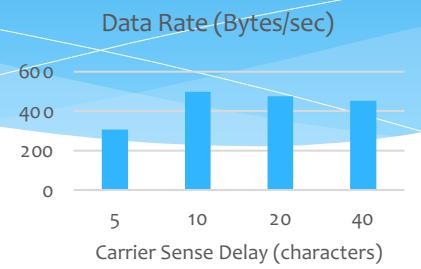
ODG LIN – Combining Issue

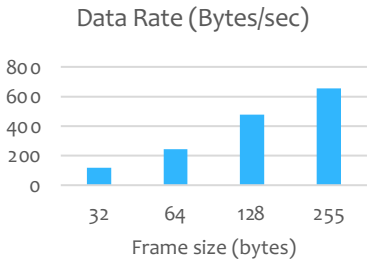
* ODG LIN permits networks to be combined
* Combined networks can have duplicate hardware addresses
* Need to use 48-bit MAC address to resolve
  * Destination address potentially elided with CRC trick
* Details TBD…

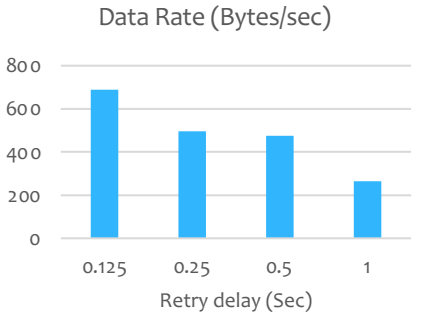


ODG Performance Tuning

* Tunable parameters:
  * Carrier sense back-off
  * Frame size
  * Collision retry back-off

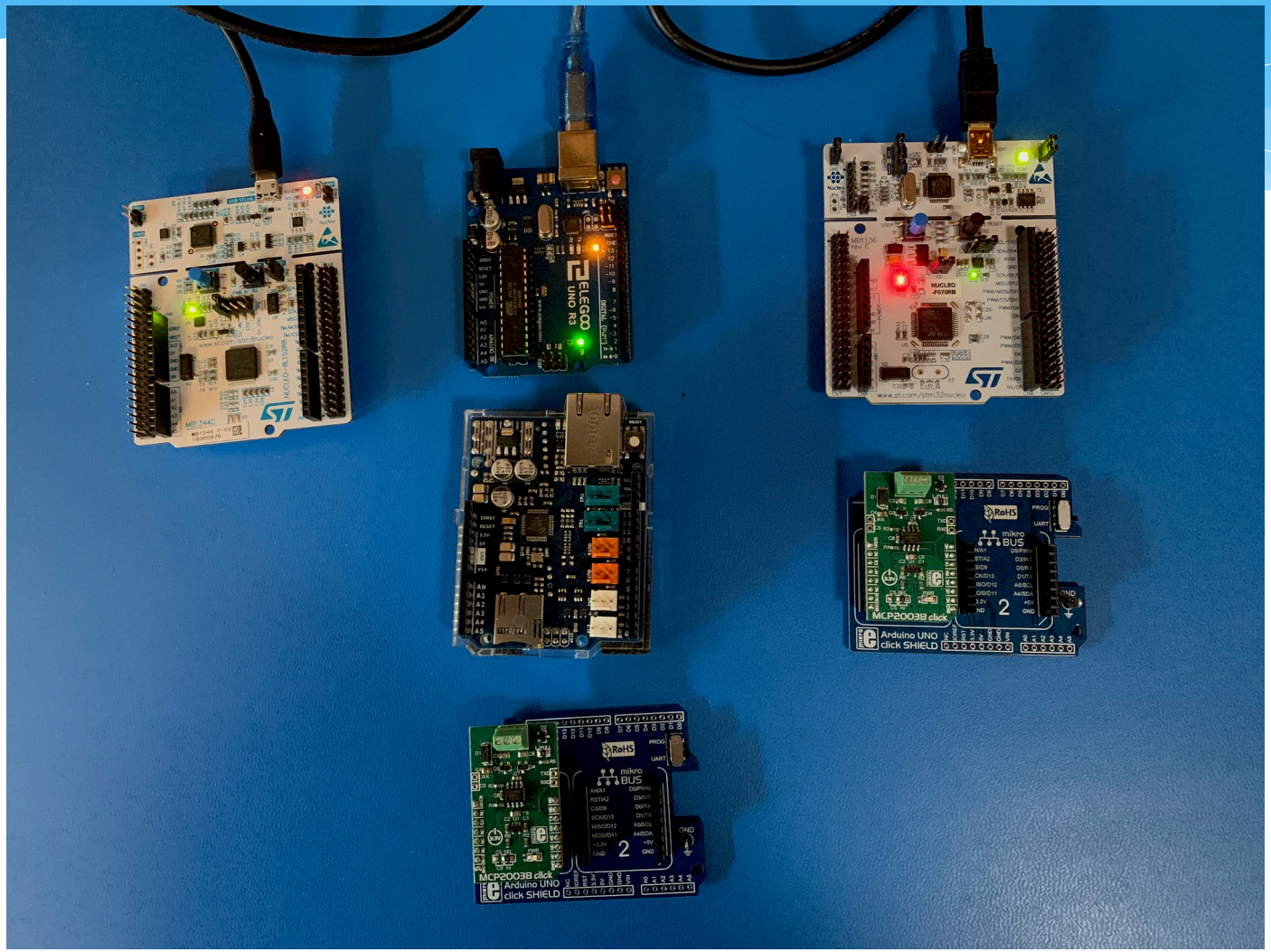






Test	Packets/sec	Bytes/sec	Bits/sec	Errors/sec
Echo via CoAP	6	770	8470	0.0
Link ping 2 clients	5	306	3366	0.0
Link ping 4 clients	8	476	5236	0.0
Link ping 8 clients	9	387	4257	0.8
Link ping 15 clients	6	336	3696	0.8
Parameters				
Carrier backoff (chars)	20			
Frame size (bytes)	128			
Retry delay (seconds)	0.5			

ODG LIN Test Framework



Related Standards / Industry Developments

* P2030.10
  * In IEEE editorial for legal requested changes…
* P2030.10.1
  * Getting ready for ballot – no recent activity
* GOGLA Interop activities
  * Draft standard for connectors. Doesn't say much about electrical.
* OpenPAYGO Link
* Angaza Nexus Channel / Nexus Channel Core
* Open Connectivity Foundation / IoTivity

Next Meeting / Feedback

* Next Meeting
  * 10 November 2020 – 1500 UTC
  * Zoom – Meeting ID 87518284403
* Sharing Portals
  * Web site: https://open-dc-grid.org/
  * GitHub: https://github.com/open-dc-grid
* Feedback?