software project telematics [1]
summer 2014 – FU Berlin

RIOT ON ARM CORTEX 0 AND NORDIC BLUETOOTH LE

by Adam, Christian and Timo

Project tasks

- Porting RIOT to nrf51822
- Get the Bluetooth LE module running
  - Access and read registers of that module
- Communicate between 2 boards

Planed, TODO & done

- Introduction
  - Get overview of documentation
    - Cortex M0
    - nrf BLE
  - Get in touch with RIOT [5]
  - Installing toolchain for Cortex M0

Planed, TODO & done

- → Recompile / adjust RIOT modules for processor
  - adjust board environment
  - First programing: using onboard LED‘s
  - flash script
  - Usung UART for debugging
  - → adjust timer.c for nrf58122
  - → Task switching
    - → provided by cortexm_common
    - → currently build erros

Planed, TODO & done

- Access and read nRF registers
  - → port routines to access BLE registers from nRF SDK
- Bluetooth communication between boards
  - → add higher layer routines for BLE communication
  - → make new example for sending and receving BLE msg

BLE modules

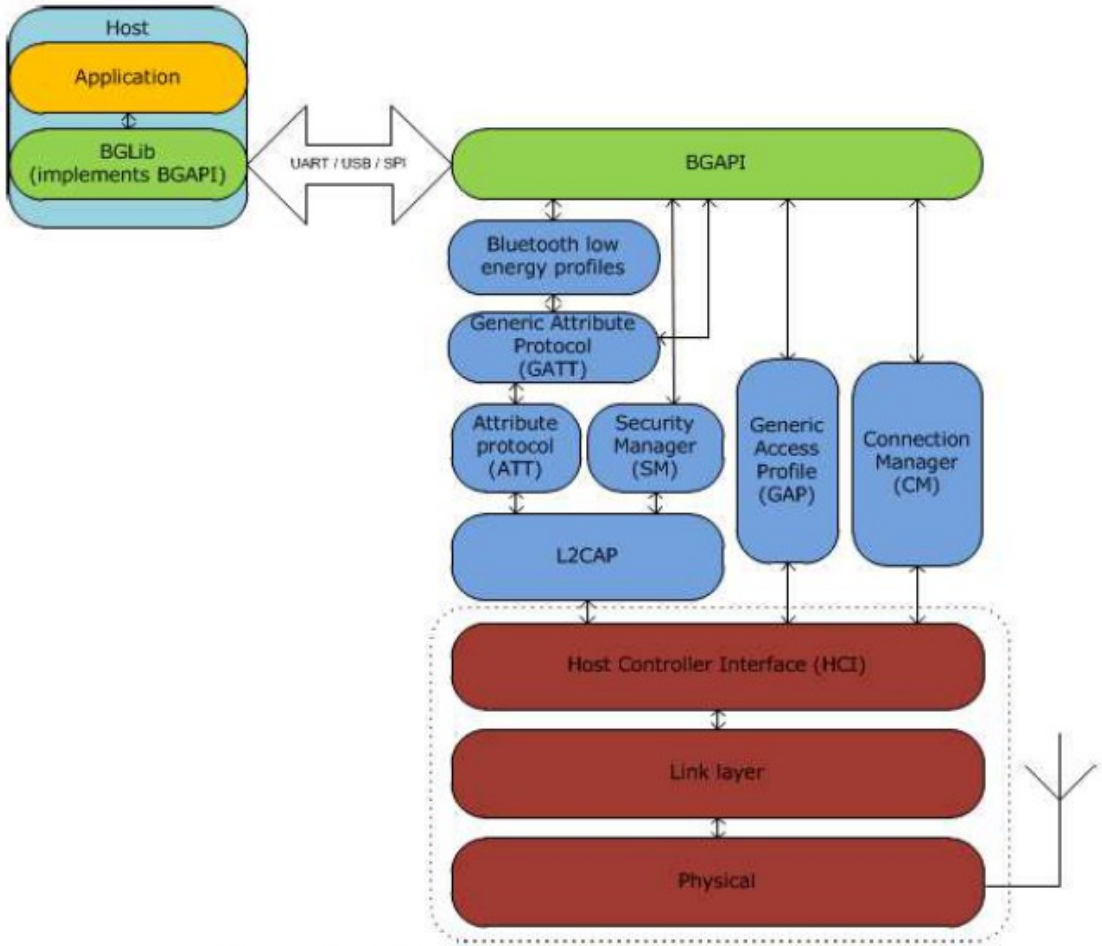

Figure 1. Bluetooth Low Energy Protocol Stack

[1] BLE modules outline

Schedule

TOPIC	planned	reality
Introduction -reading documents - riot overview - setup toolchain	3 weeks	4 weeks
porting to our plattform	4 weeks	> 5 weeks (still in progress)
BLE communication	4 weeks	3 weeks
Documentation	2 weeks	1 week

Links and Sources

[1] Jara, Fernández, López, Zamora, Ubeda, Skarmeta, *Evaluation of Bluetooth Low Energy capabilities for continuous data transmission from a wearable electrocardiogram*,Computer Sciences Faculty, University of Murcia, 2012 Sixth International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing