**WNR (Wireless Neural Recorder)**

Rice University

Weekly Progress Report 18

2/5/2016 - 2/11/2016

**Agenda for meetings**

* No meeting this week since Dr. Tandon and the rest of the team had a hard time organizing a time to meet

**Activities this week**

1. Wireless Transmission:
   1. Nordic nRF51 maximum throughput example ported to nRF52
   2. BLE single link maximum throughput on current firmware version of Nordic nRF52 achieved
2. Analog Front-End
   1. Fatal error resolved and data and power consumption was visualized
3. Compression:
   1. Input and transmission buffers tested and functioning as intended for now

**Problems encountered**

1. Wireless Transmission
   1. Porting from nRF51 to nRF52 was long and not needed as implementing on nRF52 is straightforward
   2. We reached another bottleneck of 60 kbps, half of 128 kbps, which we believe is due to the current firmware we are using
2. Analog Front-End
   1. Data is still noisy

**Time devoted to project this week**

|  |  |  |
| --- | --- | --- |
| **Name** | **Tasks Accomplished** | **Hours Spent** |
| Stephen Xia | * Continuously transmit data over BLE from one peripheral to central device * Characterize data rate while transmitting continuously over BLE from one peripheral to central device | 13 |
| Tingkai Liu | * Read “fake” data from Intan Chip through SPI and display to confirm the data is actually being received using Nordic nRF52 * Characterize/confirm power consumption of the Intan Chip + accessory devices (like LVDS) | 10 |
| Xin Huang | * Continuously transmit data over BLE from one peripheral to central device | 6 |
| Yuan Gao | * Implement and characterize compression algorithm (like MiniLZO) * Implement a compression algorithm (like LZO) on Nordic nRF52 | 8 |
|  | **Team Total** | 37 |

**Meetings Minutes**

* No meeting this week since Dr. Tandon and the rest of the team had a hard time organizing a time to meet

**Expenditures**

* N/A

**Action items list**

|  |  |  |  |
| --- | --- | --- | --- |
| **Action item** | **Owner** | **Due date** | **Status** |
| Run SPI test to read data and measure power consumption | Tingkai Liu | 2/25/2016 | 30% |
| Implement and characterize compression algorithm (like miniLZO) | Yuan Gao | 2/25/2016 | 20% |
| Sign up for competitions | Xin Huang | 2/26/2016 | 100% |
| Continuously transmit data over BLE from one peripheral to central device | Stephen Xia | 2/25/2016 | 30% |
| Characterize data rate while transmitting continuously over BLE from one peripheral to central device | Stephen Xia | 2/25/2016 | 30% |
| Continuously transmit data over BLE from at least two peripheral devices to a central device | Stephen Xia | 2/25/2016 | 0% |
| Characterize data rate while transmitting continuously over BLE from at least two peripheral devices to a central device | Stephen Xia | 2/25/2016 | 0% |
| Characterize power consumption of Nordic nRF52 board | Xin Huang | 2/25/2016 | 0% |
| Read “fake” data from Intan Chip through SPI and display to confirm the data is actually being received using Nordic nRF52 | Tingkai Liu | 2/25/2016 | 20% |
| Characterize/confirm power consumption of the Intan Chip + accessory devices (like LVDS) | Stephen Xia | 2/25/2016 | 20% |
| Implement a compression algorithm (like LZO) on Nordic nRF52 | Yuan Gao | 2/25/2016 | 30% |
| Achieve at least 20% compression on raw data | Yuan Gao | 2/25/2016 | 0% |

**Additional Comments/Questions for Mentors**