HEED: Lantern Monitoring Systems

Folder description

The below zipped folders have been deposited

- Phase 1.zip: Data collected from mobile lantern monitors during phase 1 of the study (03 July 2019 to 30 September 2019)
- Phase 2.zip: Data collected from mobile lantern monitors during phase 2 of the study (09 October 2019 to 18 December 2019)

Folder structure

The zipped folders consist of .csv files containing data for each mobile lantern monitor. The files are labelled as ML_[ID].csv, where ID refers to the unique identifier of the lantern monitor. Note that the IDs used during phase 2 of study are independent of those used in phase 1 of study.

File structure

Each .csv file contains the below data

- Timestamp: Time at which data was collected in unix time format (number of seconds since 1st January 1970). The time zone of data collection is GMT+2. The zero values denote a missing time stamp.
- Raw step count: Cumulative step count since device reset.
- Smoothed step count: Cumulative step count since device reset smoothed over past readings.
- Smoothed step rate: Rate of change of smoothed step count.
- Solar battery voltage: Voltage of battery powering the solar lantern in ADC. A value of 1023 corresponds to 6.6V.
- Device battery voltage: Voltage of battery powering the SUM in ADC. A value of 1023 corresponds to 4.2V. The battery must be replaced and recharged once it depletes to 3.3V.
- Error code: Unique prime numbers corresponding to failures in device functionalities. The different error codes are shown below
  - Failure in GSM connection: 2
  - Failure in MQTT connection: 3
  - Failure in MQTT transmission: 5
  - Failure in opening the .csv file on the SD card: 7
  - Failure in writing to the .csv file on the SD card: 11
  - Failure in attaching to a GPRS connection: 13
- Sequence no.: Sequence number of the data packet. The sequence numbers are initialised to 0 at reset of a SUM and incremented by 1 for each new packet.