GNSS Education Activities
The University of Tokyo

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6th NOV 2018

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Overview

- Conduct GNSS Trainings, Workshops and Seminars
  - Basically in Asian countries
    - Indonesia, Laos, Malaysia, Myanmar, Nepal, Thailand, The Philippines Vietnam
    - Bangladesh, India, Singapore (planned in 2019)
  - Also, Some African Countries
    - Mozambique, Rwanda
- Conduct Webinars
  - Conduct webinars under MGA (Multi-GNSS Asia)
  - Global Access, Anybody can attend and free
    - Upto 100 participants online webinar at a time
    - Please register at http://gnss.peatix.com
- RPD (Rapid Prototype Development) Challenge
  - Encourage students and researchers to bring solutions and business values by solving real-life problems
    - The 1st RPD Challenge was done during MGA 2018 in Melbourne, Australia on 24th OCT 2018
- Develop Low-Cost High-Accuracy Positioning Systems (L-CHAPS)
  - Integrate low-cost receivers for RTK, PPK or PPP processing
    - Android or Raspberry Pi versions

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GNSS Training at GIC/AIT, Thailand, 23 – 26 JAN 2018
Jointly organized by CSIS/UT, GIC/AIT and ICG

Afghanistan, Australia, Austria, Bangladesh, Bhutan, Cambodia, India, Indonesia, Japan, Maldives, Mongolia, Nepal, The Philippines, Sri Lanka, Tajikistan, Thailand, The United States of America, Vietnam

64 Participants from 15 Countries

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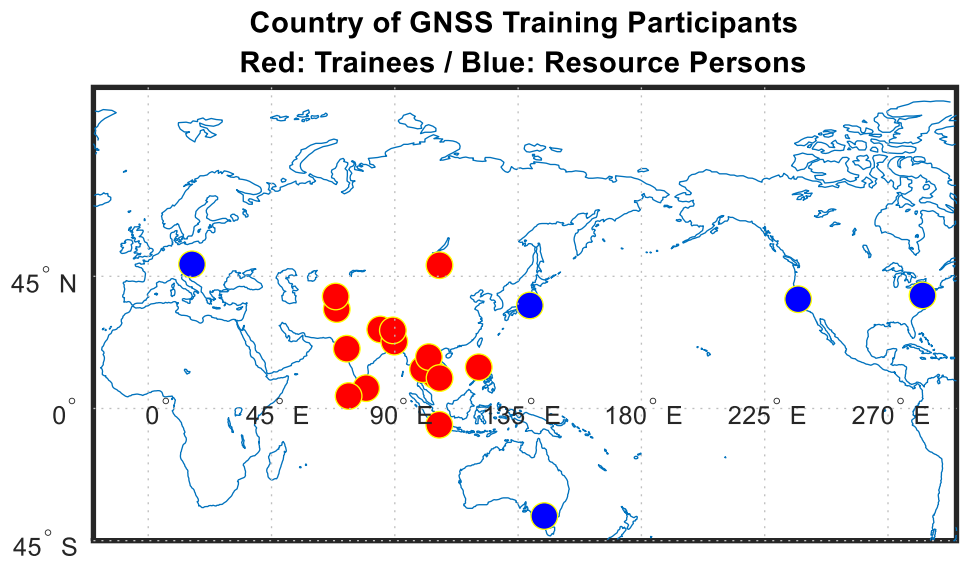
GNSS Training at GIC/AIT, Thailand, 23 – 26 JAN 2018

Total Participants	67
International Participants	25
Funded International Participants	(14)
Self-funded International Participants	(11)
Thai Participants	24
AIT Students and Researchers	18
Number of Countries	15 Afghanistan, Bangladesh, Bhutan, Cambodia, India, Indonesia, Japan. Maldives, Mongolia, Nepal, The Philippines, Sri Lanka, Tajikistan, Thailand, Vietnam
Number of Resource Persons (International)	7 (Australia: 1, Japan: 3, UNOOSA: 1, USA :2)
GIC Resource Persons	7



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GNSS Training at GIC/AIT, Thailand, 23 – 26 JAN 2018

Day 1: Online Presentation
GPS Introduction : David Turner, State Dept. of the USA
GPS Signal Structure : Tom Stansell, Stansell Consulting, USA

1. Sharafat Gadimova, UNOOSA/ICG, Austria
2. Dinesh Manandhar, Associate Professor, The University of Tokyo, Japan
3. Yuichi Hayakawa, Associate Professor, The University of Tokyo, Japan
4. Nobuaki Kubo, Associate Professor, TUMST, Japan
5. Suelynn Choy, Associate Professor, RMIT University, Australia
6. David Turner, State Department, USA (online lecture)
7. Thomas Stansell, Stansell Consulting, USA (online lecture)
8. GIC/AIT resource persons and staffs

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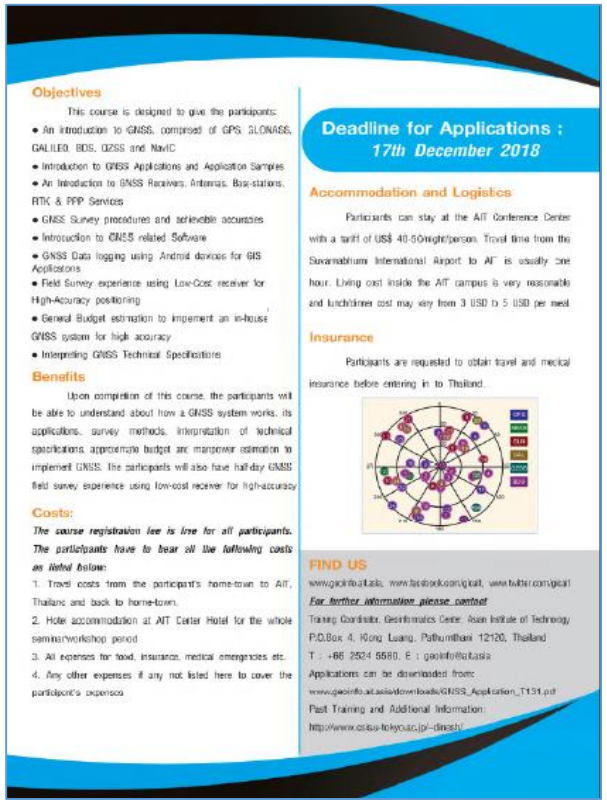
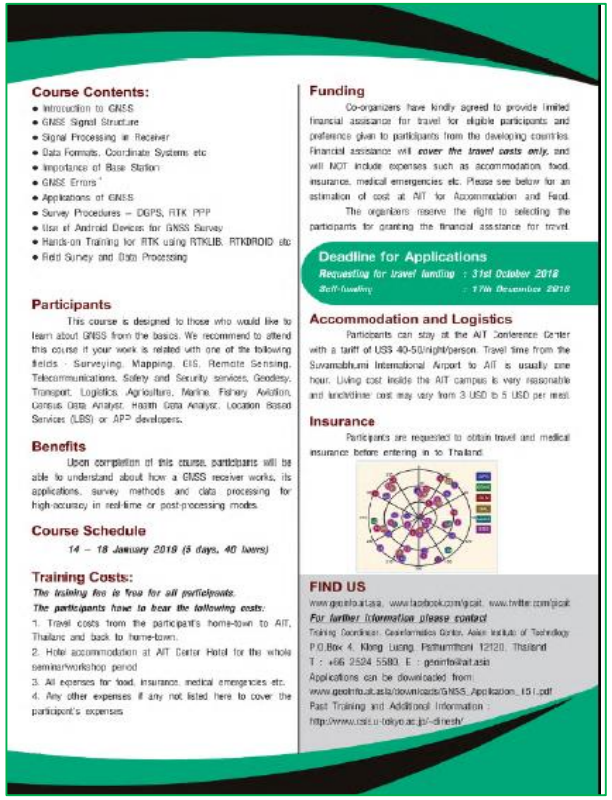
GNSS Training Courses : 14 – 18 JAN 2019

Jointly organized by CSIS/UT, GIC/AIT and ICG





- GNSS Training : 5 days Training Course
- GNSS for Policy and Decision Makers : 3 days Seminar + Workshop

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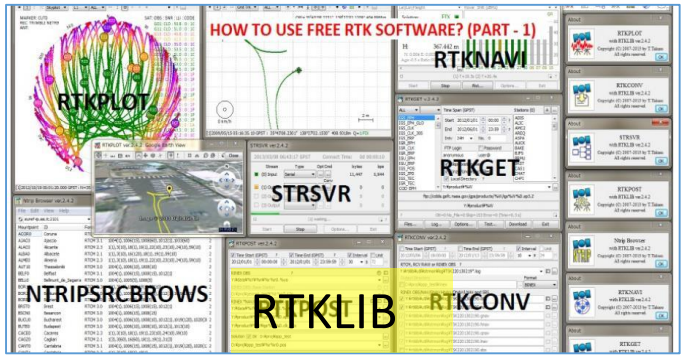
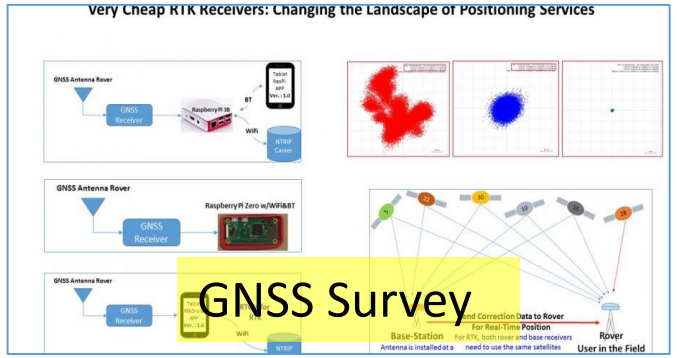
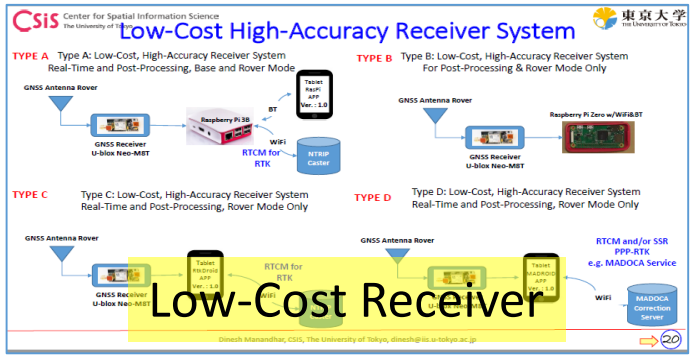
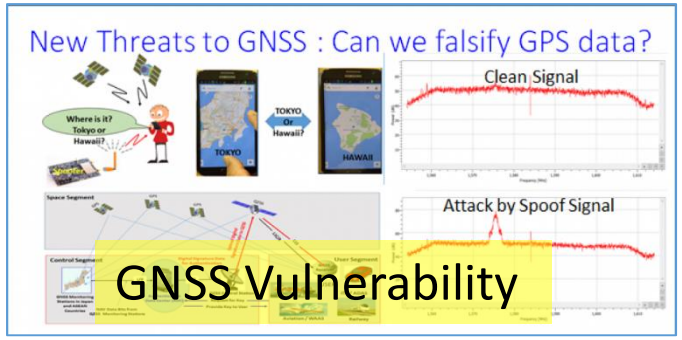
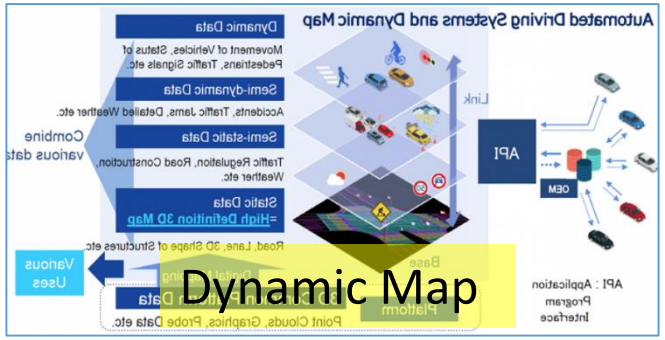
MGA GNSS Webinar

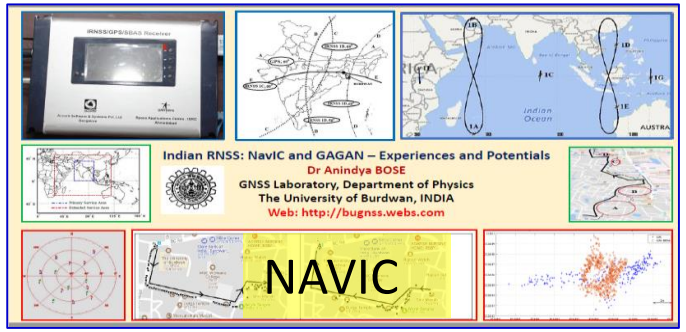












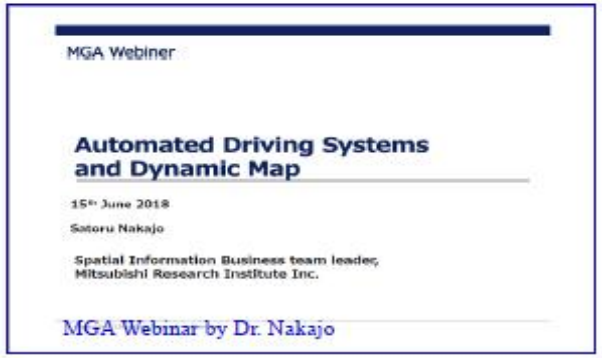
Upcoming Webinars: (1) RTK from Android GNSS Raw Data (2) Early Warning System (3) GNSS Signal Authentication (4) PNT from Micro/Cube Satellites and many more……

Webinar Registration : http://gnss.peatix.com

Past Webinar Reference: https://home.csis.u-tokyo.ac.jp/~dinesh/WEBINAR.htm

We need YOU as a Resource Person. Please contact us…..

MGA GNSS Webinar



Past Webinar Reference: https://home.csis.u-tokyo.ac.jp/~dinesh/WEBINAR.htm

MGA 2018 & (YP/S) Young Professional & Student Forum

- ICG provided Travel Funding to SIX Participants from Asia to attend MGA 2018 in Melbourne
  - India (2), The Philippines (2), Thailand (1), Vietnam (1)
- YP/S : Forum for interaction between the students, researchers and professionals
  - A networking event between the YP/S Forum participants and industry representatives were held

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RPD (Rapid Prototype Development) Challenge

- RPD Challenge Topics during MGA 2018
  - PPP from GNSS Dual Frequency Smart-Phone Raw Data
  - GNSS for Rowing Speed Measurement
  - Low-Cost GNSS for Smart-Agriculture
  - Driver's Behavior Index (DBI) Development from GNSS Data
  - Interference Monitoring
- All ICG funded participants participated the RPD Challenge
- Follow-Up Discussions will take place even after MGA through online meetings

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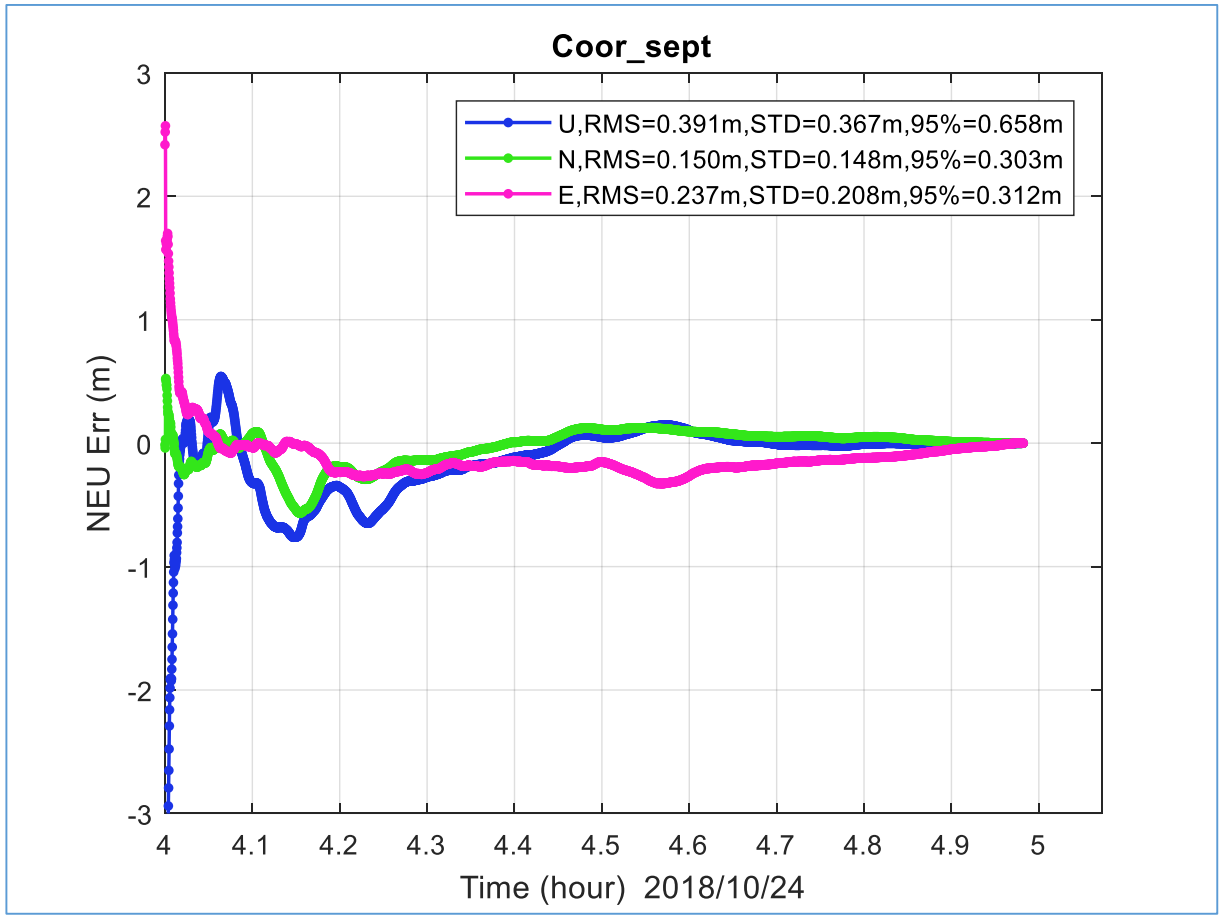
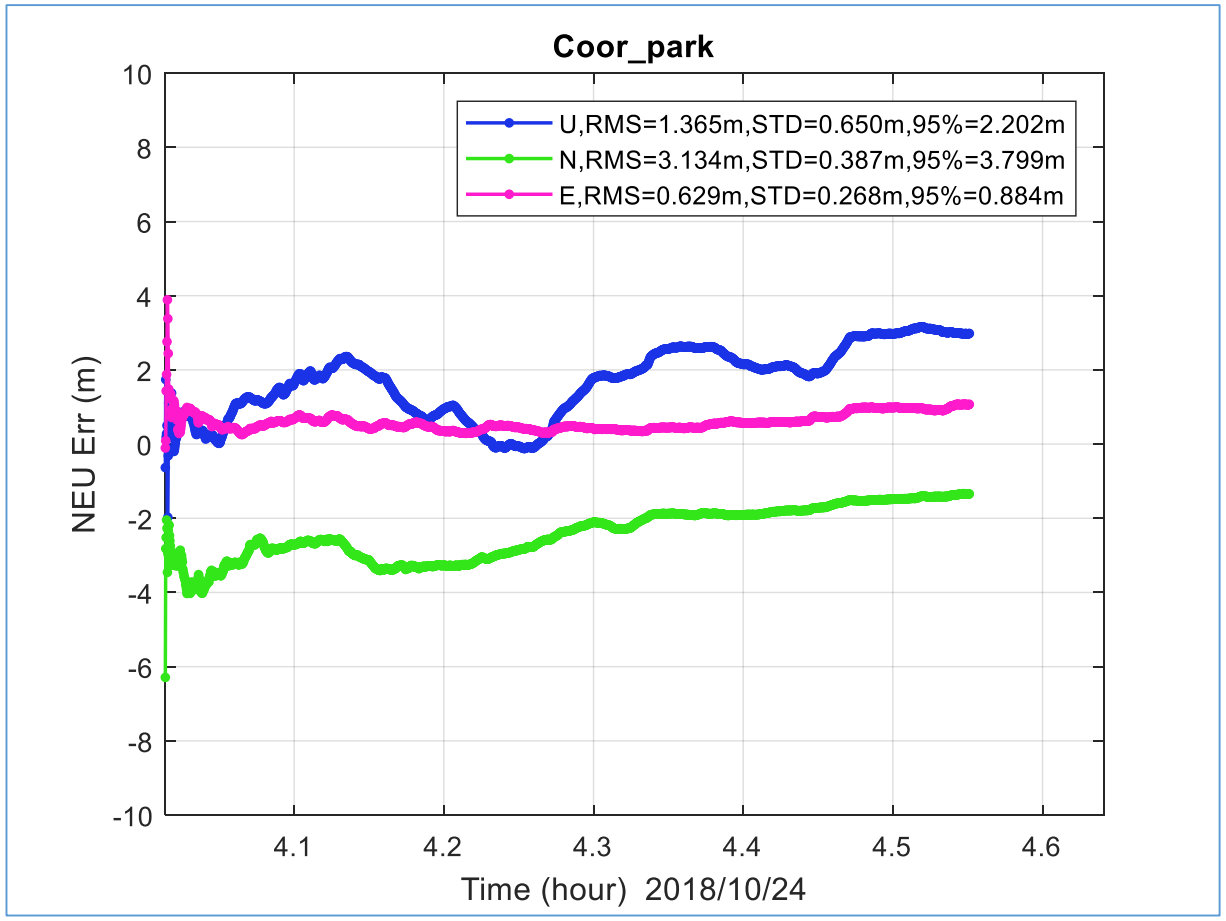
RPD Challenge: Xiaomi Mi8 vs. SEPTENTRIO PPP Results

SEPTENTRIO



Xiaomi Mi8



These are just a very quick comparison between multi-frequency, multi-GNSS receiver (Septentrio) vs. Dual-frequency (L1/L5) GNSS receiver of Xiaomi Mi8 smart-phone device. These results do not reflect the actual performance capabilities of Septentrio receiver. Actual performance will be better than these results with proper antenna setting.

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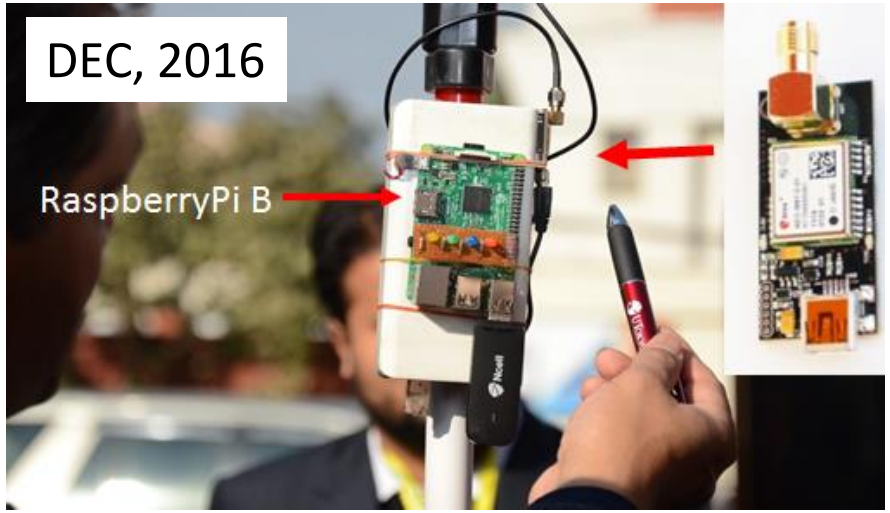
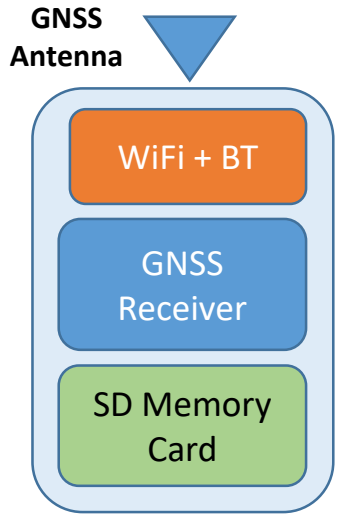
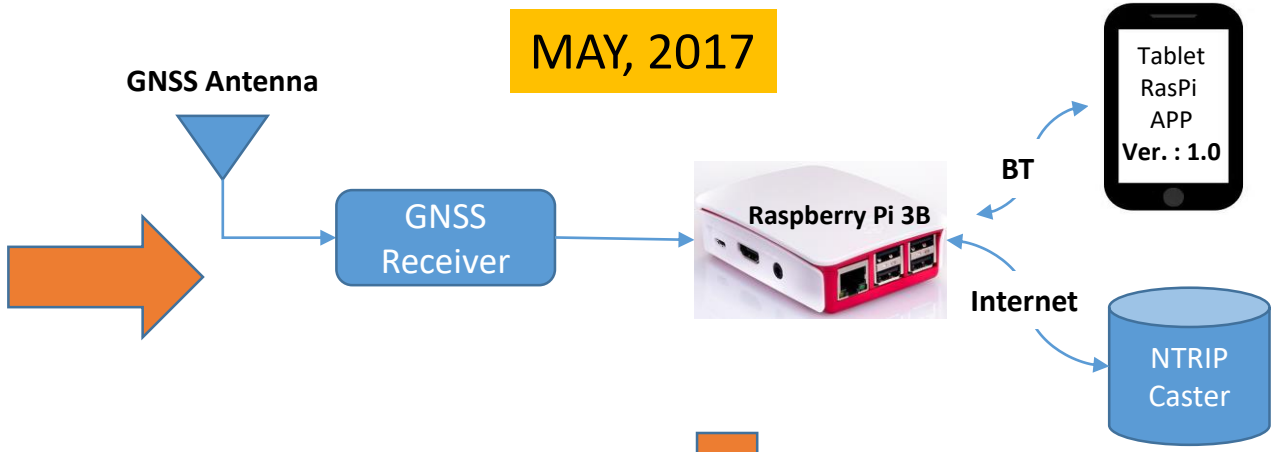
Low-Cost High-Accuracy Positioning System (L-CHAPS)

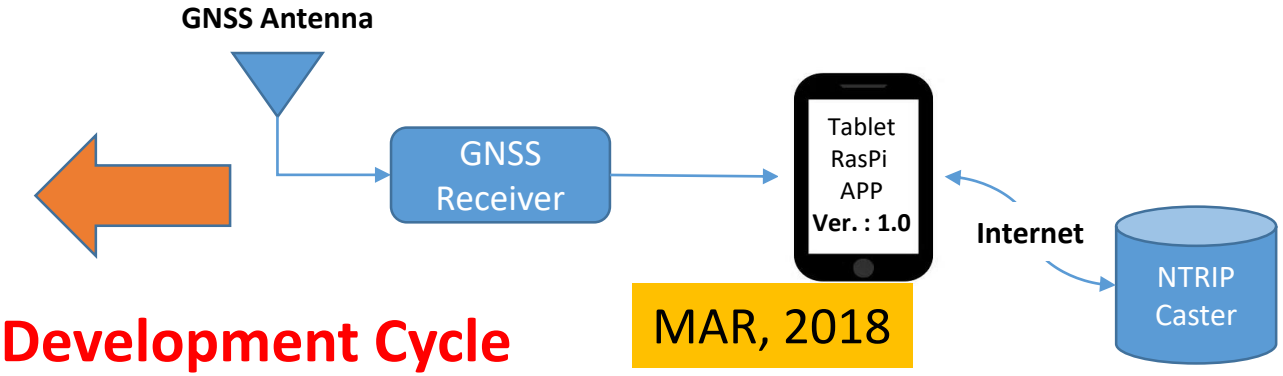
Meaning of Low-Cost : $100 x 100cm x 100gm





DEC, 2018





MAR, 2018

L-CHAPS, Development Cycle

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Android APPs for GNSS Data Logging & Processing

- RTKDROID
  - Real-Time RTK for Android devices
  - Based on RTKLIB
  - Already Released – Distribution by Request
- MADROID
  - Real-Time PPP based on MADOCA correction data through MADOCA server
  - Based on u-blox F9 dual frequency receiver
  - Under Developed – will be released Q1 2019
- SW Maps
  - Excellent GNSS data input tool for GIS in Android devices
    - Built-in GNSS Receiver or External GNSS Receivers can be used
      - External GNSS Receivers can be connected by BT or Serial Cable using an OTG cable
    - Any receiver that output generic NMEA can be connected

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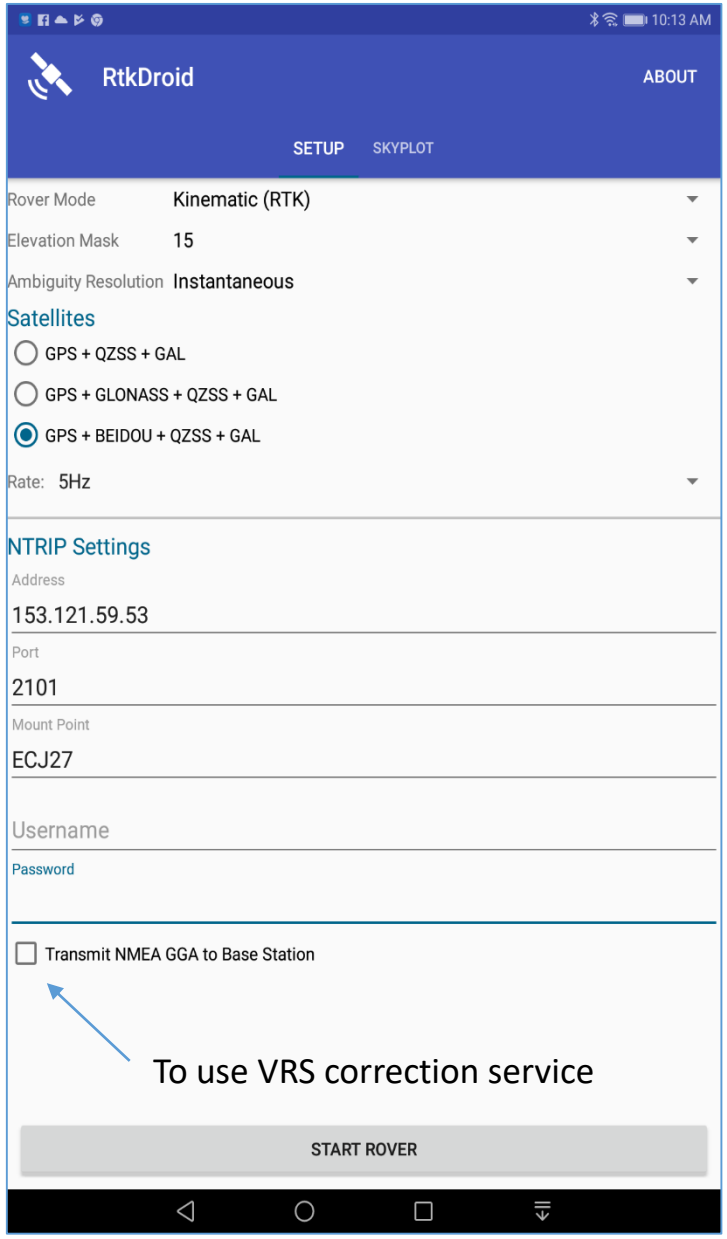
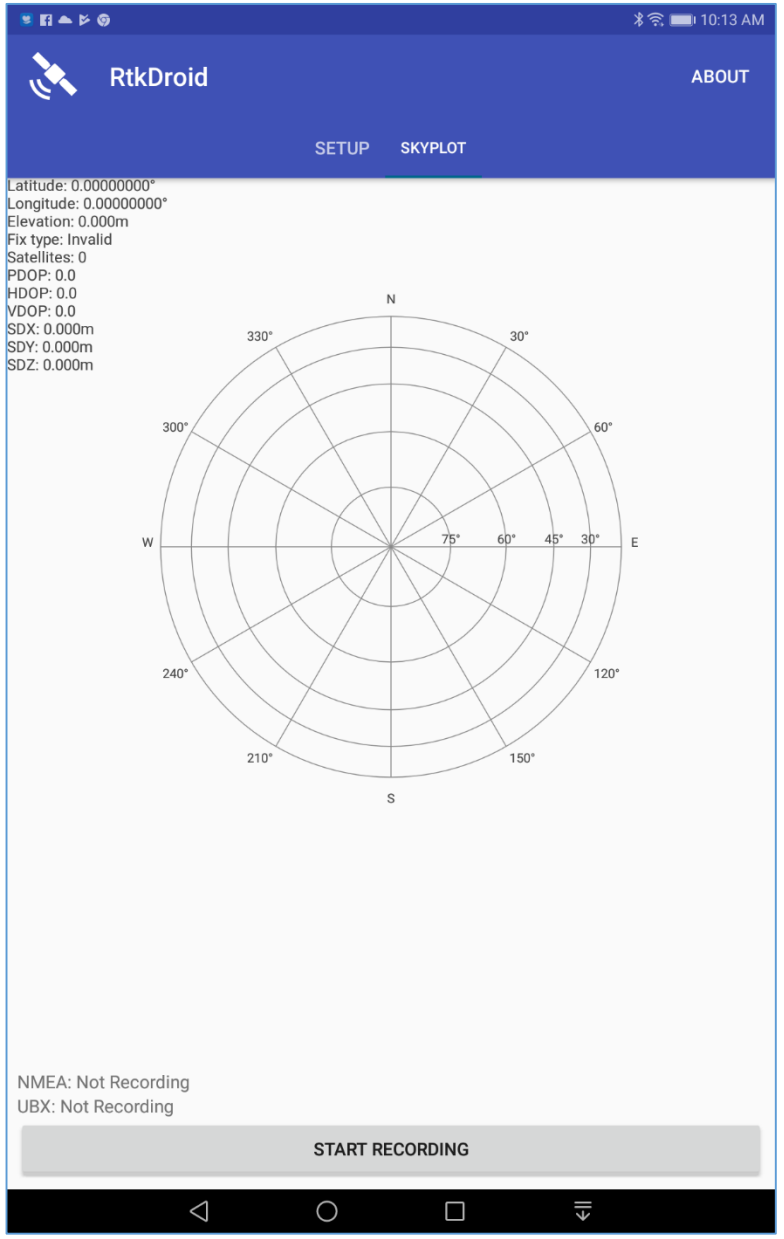
RTKDROID APP





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Link for Reference Materials

- Lab Home Page
  - https://home.csis.u-tokyo.ac.jp/~dinesh/
- GNSS Webinar
  - https://home.csis.u-tokyo.ac.jp/~dinesh/WEBINAR.htm
- Past GNSS Training Materials, Data etc
  - https://home.csis.u-tokyo.ac.jp/~dinesh/T141_30.htm
- Link to Documents, Software, Android APP etc.
  - https://home.csis.u-tokyo.ac.jp/~dinesh/Download.htm
- Contact : dinesh@iis.u-tokyo.ac.jp

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