Transportation Operation

Examination of public transport circulation with GPS track

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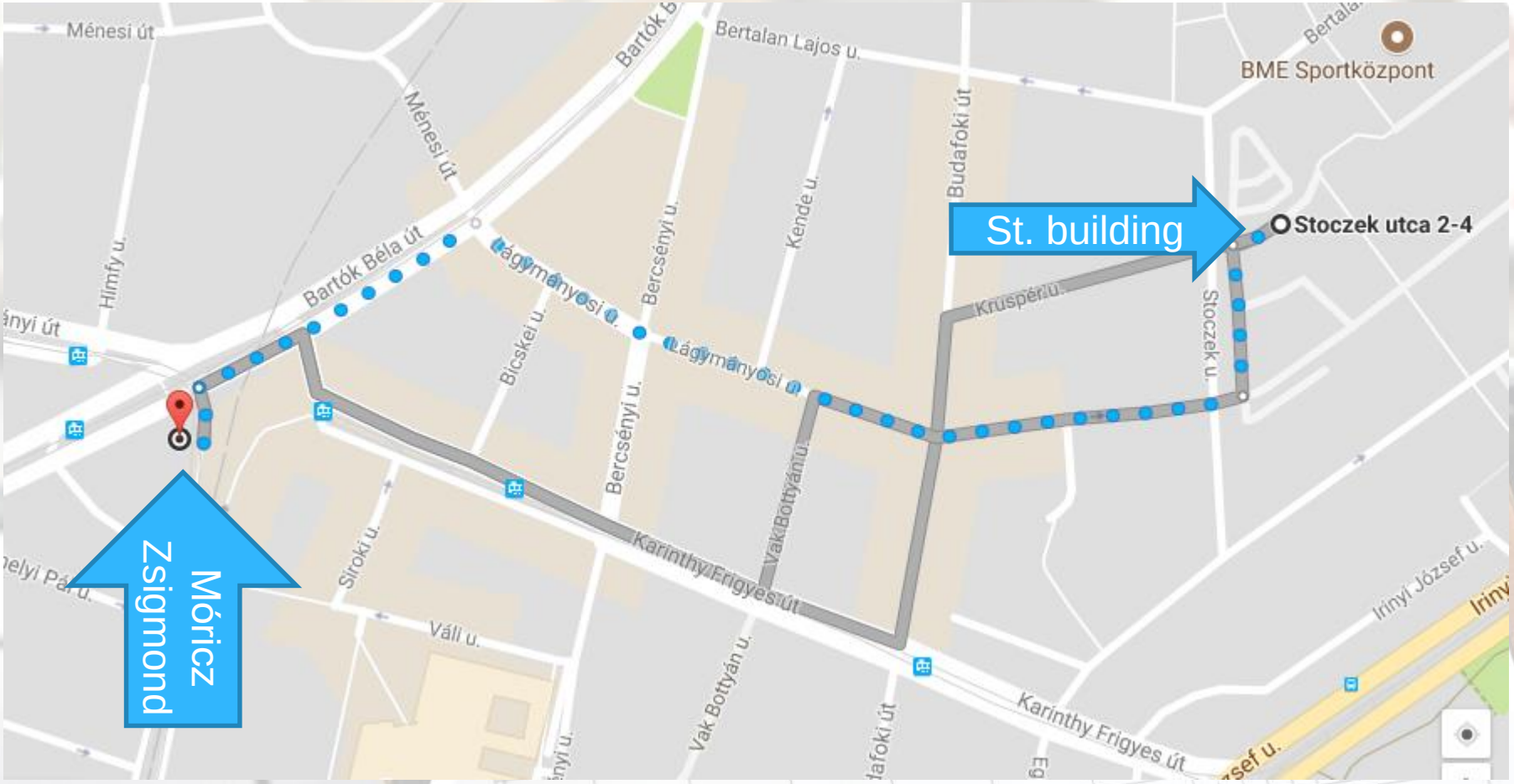
Schedule

Week	Date	Subject	Place
1-2		NO CLASS	
3		Introduction, editing requirements of reports	
4		Presentation of on-field measurement 1 (Safety level)	
5		(1) Safety level examination of road traffic	
6		Presentation of on-field measurement 2 (Occupancy)	
7		(2) Examination of public transport vehicle occupancy and time parameters	
8		National holiday – NO CLASS	
9		Presentation of on-field measurement 3 (Intersection)	
10		(3) Traffic survey at a road intersection	
11	**13 Nov**	Presentation of on-field measurement 4 (GPS)	J 208
12	**20 Nov**	(4) Examination of public transport circulation with GPS device	PT route
13		In-class exercise 1: Tram tachograph data analysis	
14		In-class exercise 2: Rail line capacity analysis	

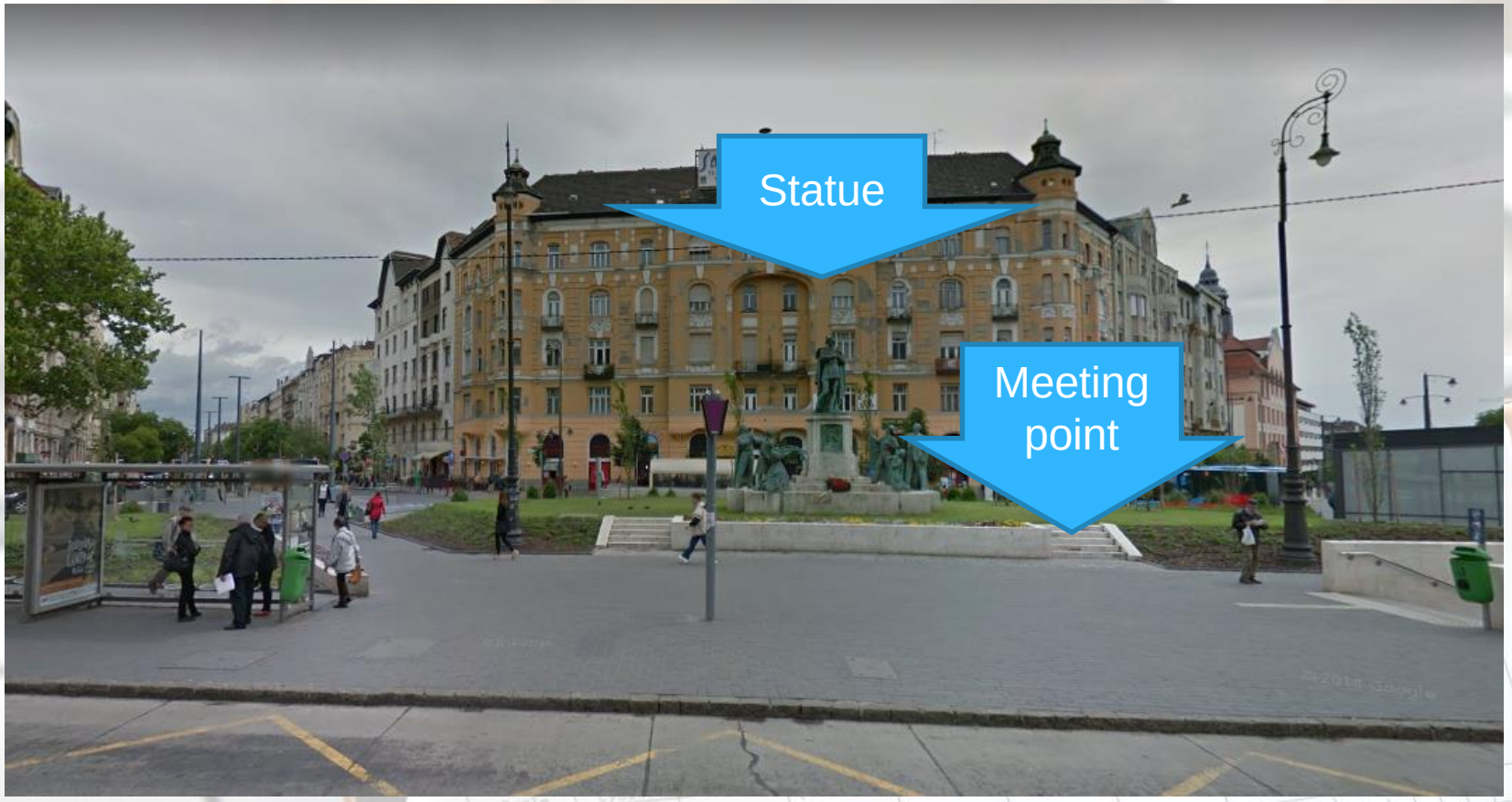
Schedule (2)

- The measurement starts at **8:30**
- The measurement's starting and arrival place:
  - Móricz Zsigmond körtér /square
- You will work in the same pairs
  - Measurement in pairs
  - Submission also in pairs

Meeting point and place of departure: Móricz Zsigmond krt.



Meeting point and place of departure:
Móricz Zsigmond körtér – Villányi street



Scope of the measurement

- The aim:
  - Running parameters analysis of a public transport line, like
    - Running speed
    - Journey speed
    - Loss time of journey

Preparations for the measurement

- Download OsmAnd application
  - Android:

https://play.google.com/store/apps/details?id=net.osmand

  - iOS:

https://itunes.apple.com/app/apple-store/id934850257

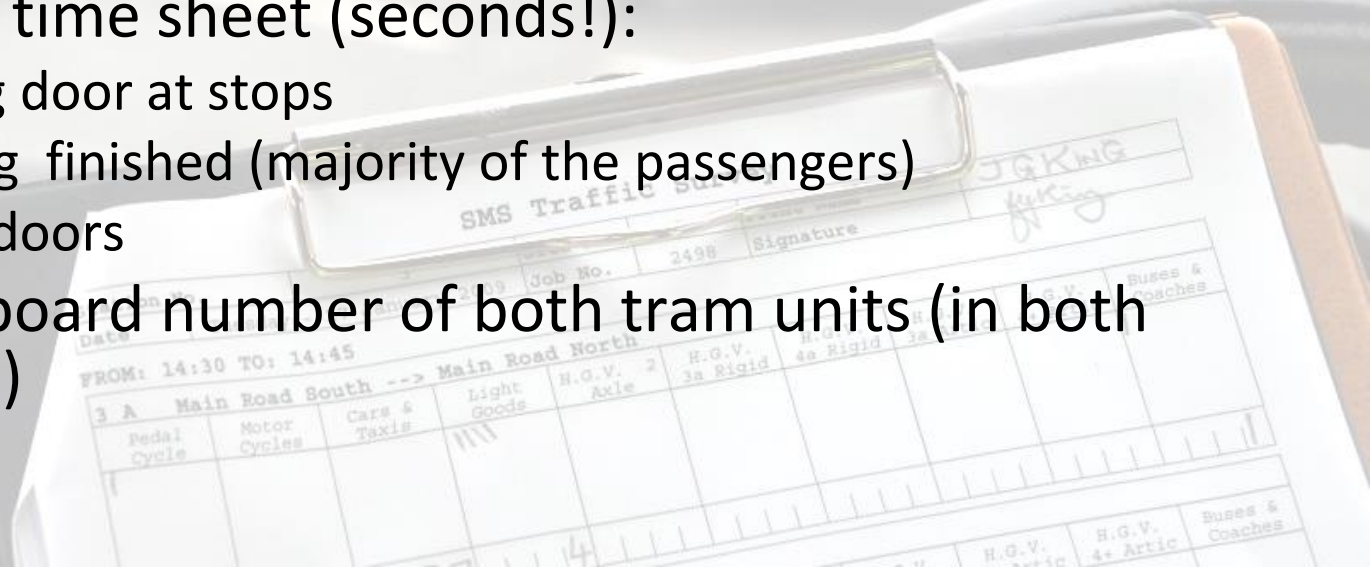
- Download and/or enable Tracking recording plug-in
- Test the application on your way back home
- Bring pen and hard back to make notes
- Fully charged mobile
- Bring your PT pass with you

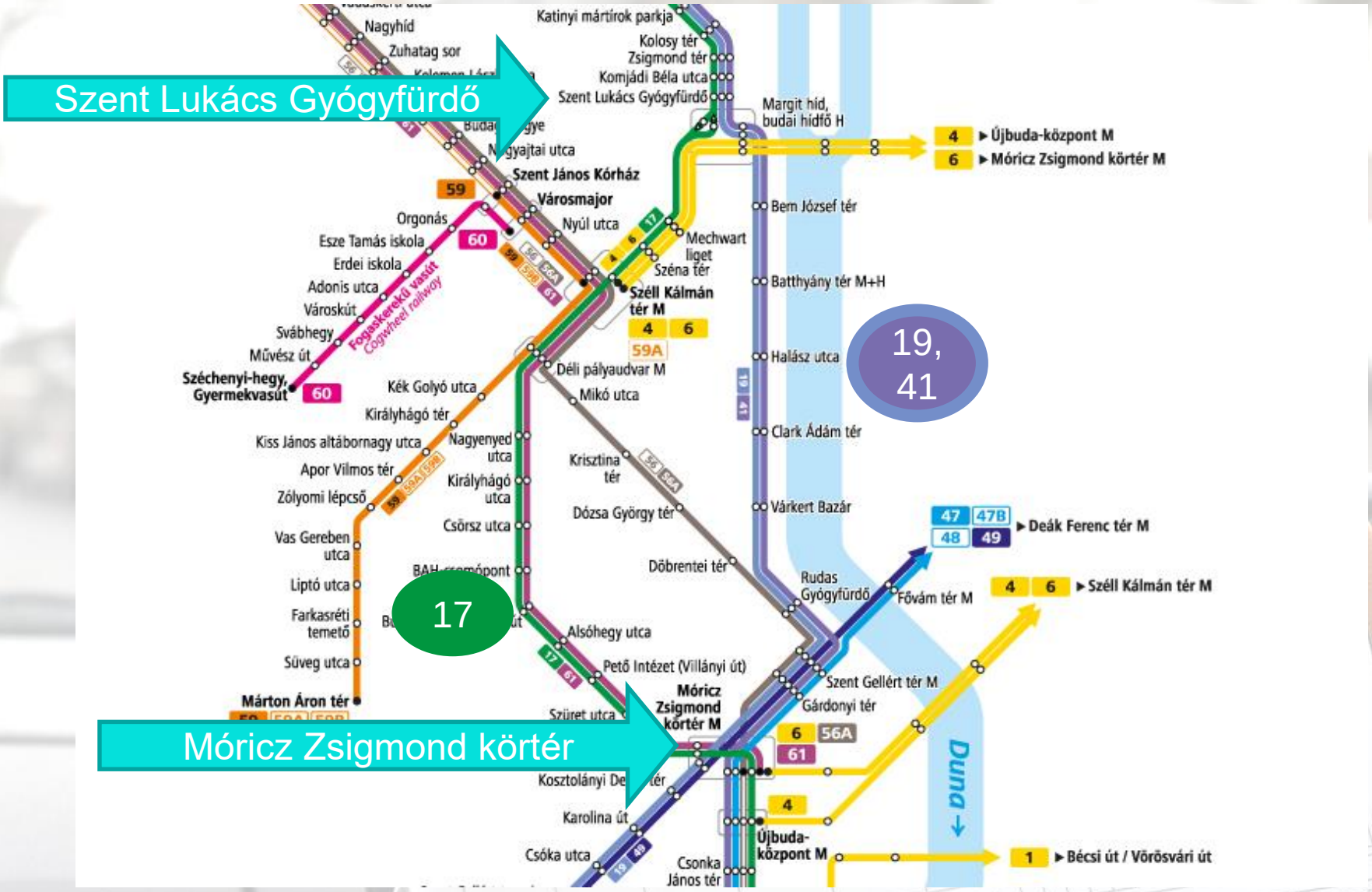
During measurement

- The target of observation: Interweaving tram lines of Buda
  - between *Móricz Zsigmond körtér* and *Lukács Gyógyfürdő*
  - both directions, cca. 60 min. overall runtime
  - Every even team: tram lines 19, 41 to direction up, tram line 17 to direction down
  - Every odd team: tram line 17 to direction up, tram lines 19, 41 to back down
  - Two teams per a coupled tram
  - One team in the front, one team in the back of the tram

During measurement

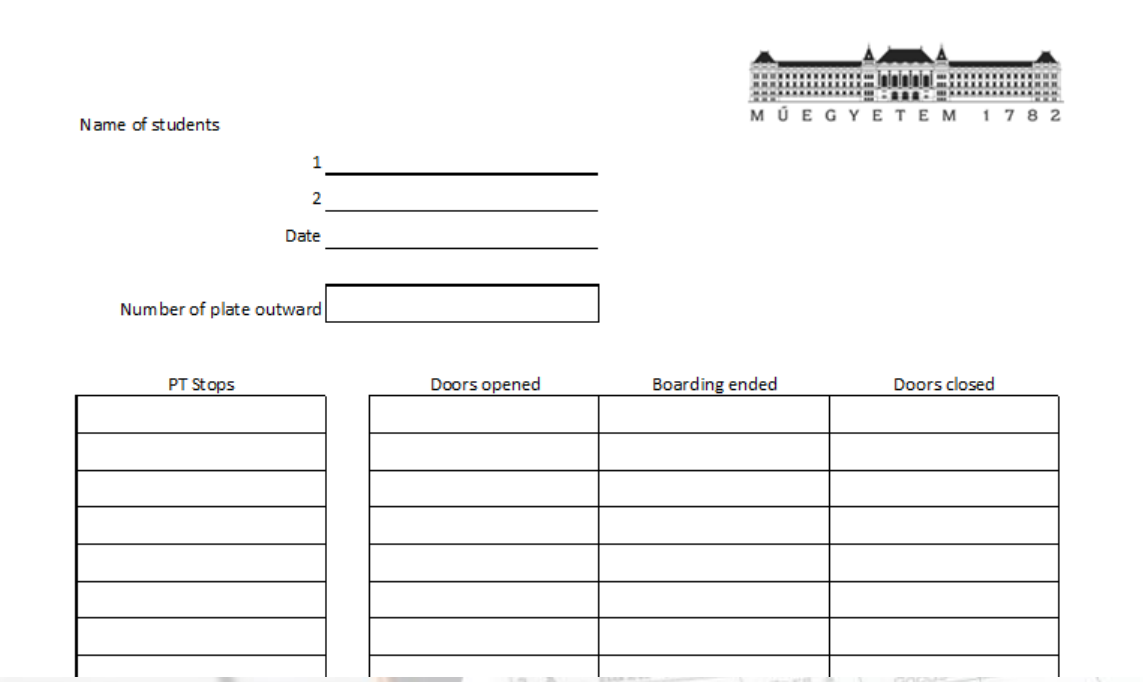
- Tasks for the teams
  - Both members can run OsmAnd (pick one to evaluate)
  - Run stop-watch in syncro with mobile
  - At *Lukács Gyógyfürdő* save the track file (starts new)
  - GPS tracker collects location data in a track log (red sign top right)
  - Filling the time sheet (seconds!):
    - Opening door at stops
    - Boarding finished (majority of the passengers)
    - Closing doors
  - note the board number of both tram units (in both directions)




Szent Lukács Gyógyfürdő
Móricz Zsigmond körtér
19, 41
17
Katinyi mártírok parkja
Kolosy tér
Zsigmond tér
Komjádi Béla utca
Szent Lukács Gyógyfürdő
Margit híd, budai hídfő H
4 ▸ Újbuda-központ M
6 ▸ Móricz Zsigmond körtér M
Bem József tér
Batthyány tér M+H
Halász utca
Clark Ádám tér
Várkert Bazár
47 47B 48 49 ▸ Deák Ferenc tér M
4 6 ▸ Széll Kálmán tér M
Rudas Gyógyfürdő
Fővám tér M
Szent Gellért tér M
Gárdonyi tér
Móricz Zsigmond körtér M
6 56A 61
4
Újbuda-központ M
1 ▸ Bécsi út / Vörösvári út
Duna
Nagyhíd
Zuhatag sor
Szent János Kórház
59
Városmajor
Nyúl utca
Orgonás
60
Esze Tamás iskola
Erdei iskola
Adonis utca
Városkút
Svábhegy
Művész út
Széchenyi-hegy, Gyermekvasút
Fogaskerekű vasút
Cogwheel railway
Mechwart liget
Széna tér
Széll Kálmán tér M
4 6
59A
Déli pályaudvar M
Mikó utca
Kék Golyó utca
Királyhágó tér
Kiss János altábornagy utca
Apor Vilmos tér
Zólyomi lépcső
Nagyenyed utca
Királyhágó utca
Csörsz utca
Krisztina tér
Dózsa György tér
Döbrentei tér
Vas Gereben utca
Liptó utca
Farkasréti temető
Süveg utca
Márton Áron tér
Alsóhegy utca
Pető Intézet (Villányi út)
Szüret utca
Kosztolányi De tér
Karolina út
Csóka utca
Csonka János tér

During measurement 2.

- Data sheet sample



MŰEGYETEM 1782

Name of students

1 _____

2 _____

Date _____

Number of plate outward

PT Stops	Doors opened	Boarding ended	Doors closed

You will get this sheet at meeting point.

With proper PT Stop list, because it's hard to follow in Hungarian.

☺

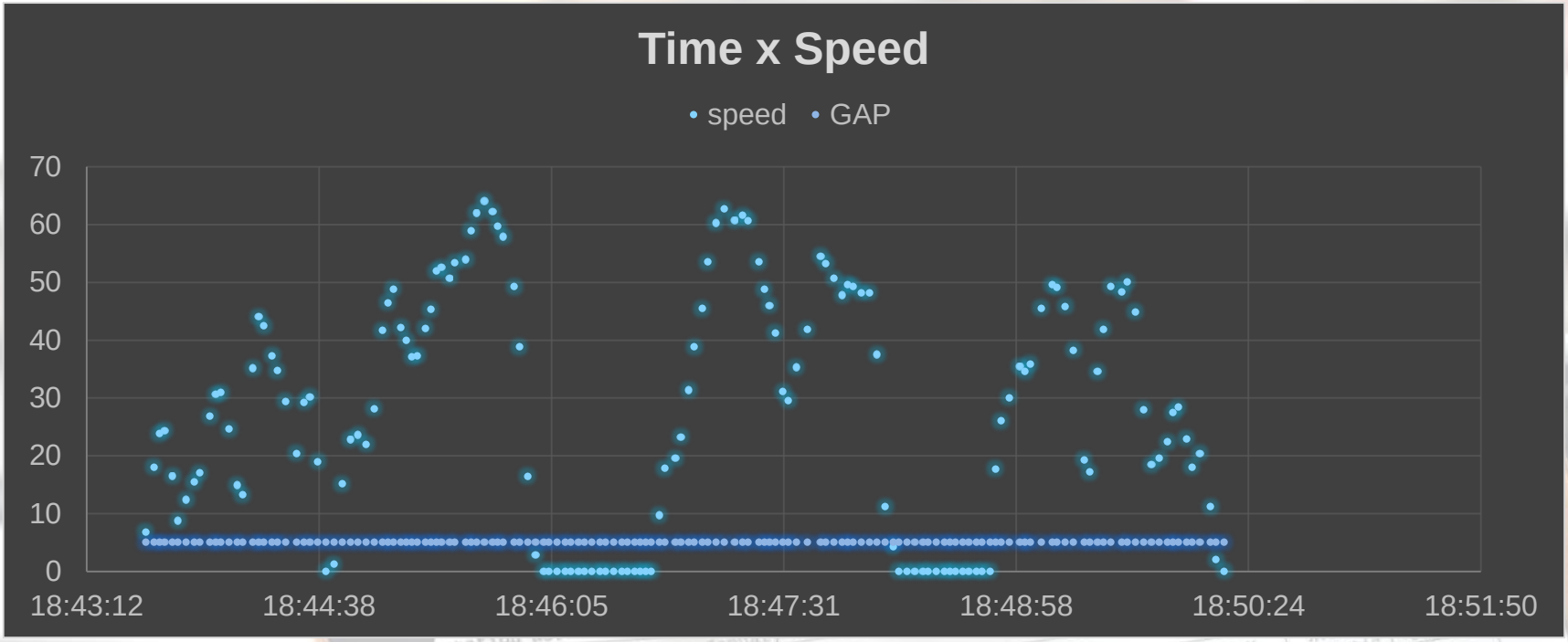
Board number

Evaluation of collected data 1.

- Data from GPS receiver:
  - Export the gpx file (My Places -> Tracks)
  - Create Excel tables (three chance) https://mygeodata.cloud/converter/gpx-to-xlsx
  - Track points
  - Speed in m/s (!)

Evaluation of collected data 2.

Draw diagram of [time] x [speed]



Evaluation of collected data 2.

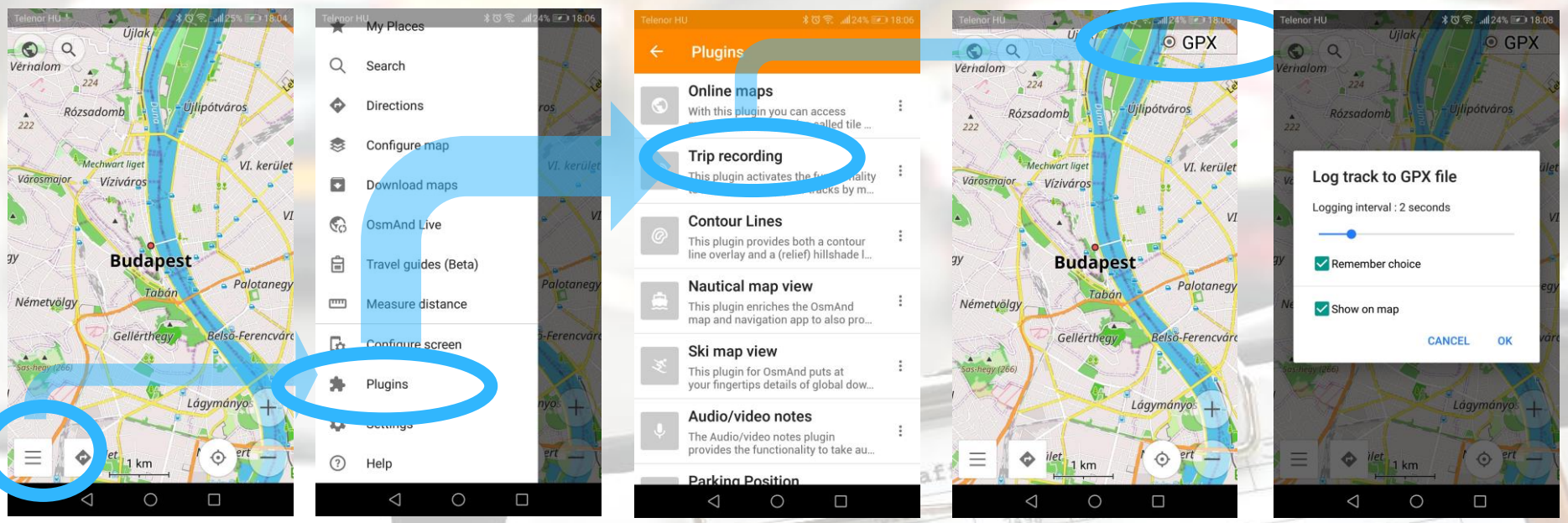
- Using your notes and your data:
  - Calculate time (for both legs):
    - Full time: first door-close to last door-open
    - Boarding time: from door-open to the majority of passengers get on the tram in each stop
    - Loss time: speed under 5 km/h, excluding boarding time
    - Running time: full time – boarding time
  - Calculate speed (for both legs):
    - *Overall* average speed (full distance/full time)
    - *Moving* average speed (full distance/running time)
  - Draw diagram of [distance] x [speed] or use screenshot

Submission

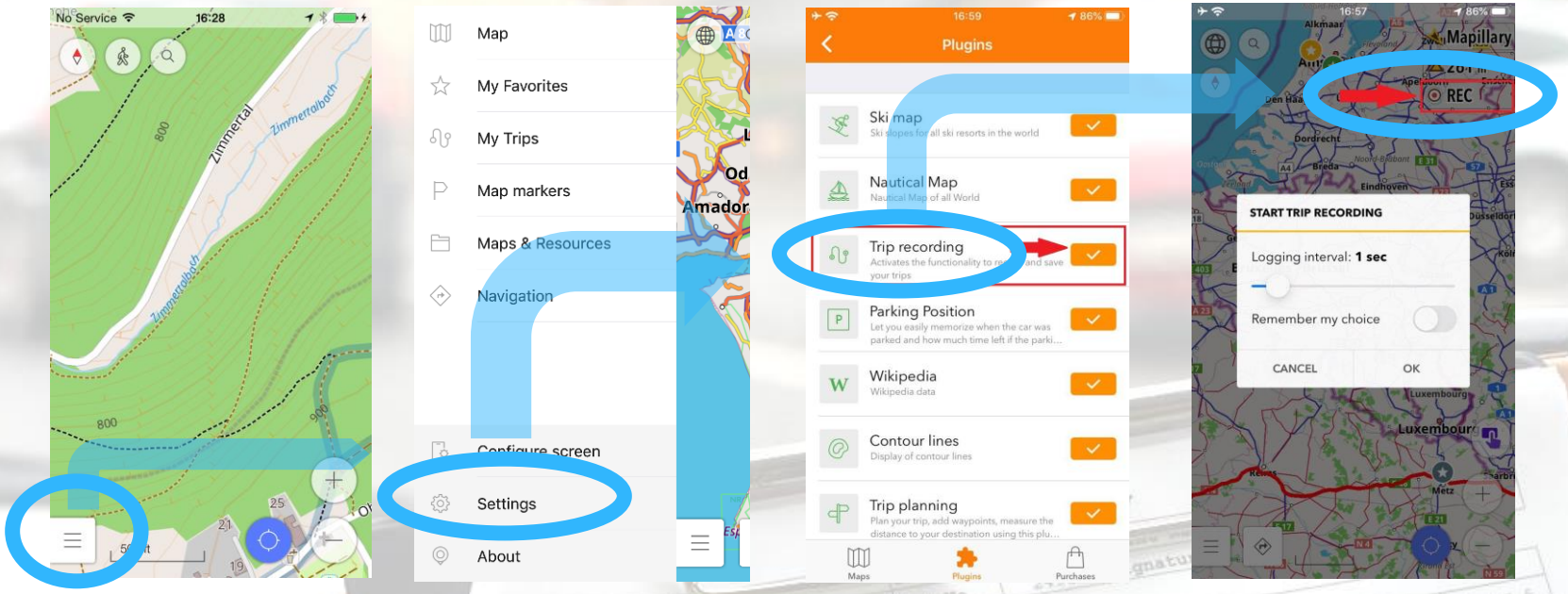
Only via email to aba.attila@mail.bme.hu

- XLSX
  - Excel calculations
- PDF
  - Calculated parameters with short description on findings
  - Descriptive comparison of the two route (1500 char.)
  - Maximum 2 pages (without cover)

OsmAnd Android



OsmAnd iOS


No Service
16:28
Zimmertal
Zimmertalbach
800
Map
My Favorites
My Trips
Map markers
Maps & Resources
Navigation
Configure screen
Settings
About
16:59
86%
Plugins
Ski map
Nautical Map
Trip recording
Parking Position
Wikipedia
Contour lines
Trip planning
Maps
Plugins
Purchases
16:57
86%
Mapillary
REC
START TRIP RECORDING
Logging interval: 1 sec
Remember my choice
CANCEL
OK
Luxembourg
Metz

Thank you for your kind attention!

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