



Projectlab Bachelor Electronics-ICT

Project 2: group work

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Lab organization

- Project 1 (week 1 – 5):
 - Individual work
 - Evaluation:
 - 1/3 of the score
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- Project 2 (week 6 – 12):
 - Group work
 - Evaluation:
 - 1/6 of the score
 - Cisco (week 1 – 12):
 - Only for those who applied
 - Evaluation:
 - 1/2 of the score (score of Cisco will be rescaled!)

- Project 2 (week 6 – 12):
 - Group work
 - Evaluation:
 - 2/3 of the score

Lab organization

- Project 2: group work
 - Calendar:
 - Week 6: Start project 2
 - Week 7: Work on project (8h/week)
 - Week 8: Work on project (8h/week)
 - Week 9: Work on project (8h/week)
 - Week 10: Work on project (8h/week)
 - Week 11: Work on project (8h/week)
 - Week 12: Presentation + demo
 - Week 13: Submit report

Subject 1: E-ink Room Reservation Display

- Display schedule of room availability, time, subject
- Use E-ink display + wi-fi module
- Get room information:
 - Via KU Loket, Toledo, KUL Opleidingen Website
 - Create own database as proof of concept example
- Update every 1/hour, get data via wi-fi
- 1st concept: USB/external powered



- Extra: Battery powered?

Datum	Lokaal	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00
Maandag 16.01.19	KUCH DA.114									PG			
Dinsdag 15.01.19	KUCH DA.114								AA				
Woensdag 16.01.19	KUCH DA.114							AA					
Donderdag 17.01.19	KUCH DA.114												
Vrijdag 18.01.19	KUCH DA.114												
Zaterdag 19.01.19	KUCH DA.114												
Zondag 20.01.19	KUCH DA.114												

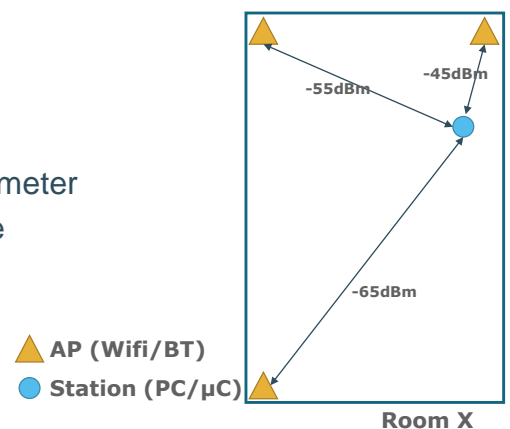
Subject 2: In-door device localisation

- Problem:
 - GPS does not work well indoors
- Solution:
 - Make use of wi-fi access points
 - Use LoRaWAN/wi-fi for database connection
- List of MAC/BSSID addresses of access points and their location
- (Make connection with)/Use strongest wi-fi signal
- Send timestamp + MAC/location to TTN/DingNet
- Visualise the location on a map (C++/C#/Python/...)

mac/bssid	MAC	locatiebeschrijving
help-8910-0015	18:80:30:26:07:68	onderwielab bouwruimte, maar kant station
help-8910-0040	70:0f:3f:74:08:f4	onderwielab mcyon
help-8910-0050	00:17:42:87:76:3c	onderwielab omgevings technieken
help-8910-0070	2c:54:0f:0a:c3:c2	opslag bak en pun
help-8910-0088	80:3c:5b:6a:01:00	technisch labaal veld delen
help-8910-0010	70:0f:3f:74:08:18	naast toiletten inkom, boven plafond
help-8910-0010.2	00:2c:5b:6a:01:04	informat, rechts van trappengang
help-8910-0010.2	2c:5b:6a:01:04	informat, links van trappengang
help-8910-0051	70:0f:3f:74:08:3c	AP landingskantoor 1e, midden verspreiden
help-8910-0010	70:0f:3f:74:08:64	onderwielab mechanische structuren en video akoestiek
help-8910-0050	18:80:30:26:08:84	onderwielab aandrijf en energetische
help-8910-0070	70:0f:3f:74:08:14	bergplaats machine en vernieuwings
help-8910-0090	18:80:30:26:0c:ec	onderwielab energie en automatisering, kant gang
help-8910-0010	70:0f:3f:74:08:90	onderwielab mechanische vormgevingstechnieken, kant liftten
help-8910-0010	00:2c:5b:6a:01:04	naast w.c., tegen plafond
help-8910-0001	18:80:30:26:07:40	landschapsbureau 2e, hoek printen
help-8910-0020	18:80:30:26:0c:ec	onderwielab kunststofvormgevingstechnieken, maar andere kant station
help-8910-0050	70:0f:3f:74:08:04	onderwielab mechanische meettechnieken
help-8910-0055	18:80:30:26:08:60	onderwielab ICT, midden maar LCD
help-8910-0050	00:2c:5b:6a:01:00	onderwielab elektronica, kant tussen deur
help-8910-0085	70:0f:3f:74:08:3c	onderwielab embedded software, rechtsboven doorgang IT lokaal
help-8910-0010	2c:54:0f:0a:c3:c2	AP bovenop datakast geplaatst, rechtsreeks in poort
help-8910-0001	00:2c:5b:6a:01:04	informat, kant foyer
help-8910-0001	00:2c:5b:6a:01:04	informat, kant raam
help-8910-0001	00:2c:5b:6a:01:04	informat, kant projectiescherm
help-8910-0005	70:0f:3f:74:08:0c	Foyer aula, boven plafond zitbank
help-8910-0050	00:2c:5b:6a:01:04	AP 1 cafeteria, kant zitbank tov keuken
help-8910-0050	00:2c:5b:6a:01:04	AP 2 cafeteria, kant keuken
help-8910-0050	00:2c:5b:6a:01:04	AP 3 cafeteria, doorgang buitenterras
help-8910-0050	2c:54:0f:0a:c3:c2	AP 4 cafeteria, kant Eten
help-8910-0010	00:2c:5b:6a:01:04	gang 3e, kant parking
help-8910-0001	70:0f:3f:74:08:14	grote pc klas achter boven
help-8910-0001	70:0f:3f:74:08:14	kleine pc klas vooraan boven bord
help-8910-0001	18:80:30:26:07:40	klas medium 1
help-8910-0001	70:0f:3f:74:08:14	klas small 1
help-8910-0001	70:0f:3f:74:08:14	onderwielab kast line
help-8910-0070	00:2c:5b:6a:01:04	groot praatlokaal kind, hoek secretariaat
help-8910-0001	70:0f:3f:74:08:14	AP praatlokaal kind
help-8910-0010	00:2c:5b:6a:01:04	AP 1 secretariaat, tussen 4.17/4.170
help-8910-0010	00:2c:5b:6a:01:04	AP 2 secretariaat, tussen 4.110/4.118
help-8910-0001	70:0f:3f:74:08:14	lab fysica, midden plafond
help-8910-0010	70:0f:3f:74:08:14	klas medium, vooraan
help-8910-0010	70:0f:3f:74:08:14	klas medium, aan ingang
help-8910-0010	70:0f:3f:74:08:14	lab microbiologie, maar tov kant station
help-8910-0070	70:0f:3f:74:08:14	lab organische chemie, naast deur
help-8910-0080	18:80:30:26:08:34	lab algemene chemie, maar tov kant station
help-8910-0080	00:2c:5b:6a:01:04	lab instrumentele chemie, maar tov kant station
help-8910-0001	00:2c:5b:6a:01:04	klas large, rs
help-8910-0010	70:0f:3f:74:08:14	klas medium 5, naast ingang
help-8910-0001	00:2c:5b:6a:01:04	leercentrum, naast ingang, links van nis
help-8910-0020	00:2c:5b:6a:01:04	leercentrum, naast ingang, rechts van nis
help-8910-0040	00:2c:5b:6a:01:04	klas medium 6, achter
help-8910-0050	00:2c:5b:6a:01:04	klas medium 7, naast deur
help-8910-0060	70:0f:3f:74:08:14	klas small 3, naast deur
help-8910-0070	00:2c:5b:6a:01:04	klas small 4, naast deur
help-8910-0001	2c:54:0f:0a:c3:c2	groepswerkruimte

Subject 3: In-room device localisation using triangulation (or trilateration)

- Problem:
 - GPS does not work well indoors
 - Wi-fi localisation is not so precise
- Solution:
 - Use three Wifi(1)/BLE(2) access points
 - Use connection strength as distance parameter
 - Calculate position using μC or pc software
 - Calibration can/will be necessary
 - Visualise using software (C++/C#/Python/...)



Subjects and groups

Group 1	Group 2	Group 3	Group 4	Group 5
Anzhelina	Donovan	Baptiste	Tijl	Emiel E.
Emiel D.B.	Joris	Michel	Robbe	/
Sebastian	Brent	Ine	Ruben	/
Lander	Robin	Stijn	Jordy	/

- Group 1, 2, 3, 4: choose subject 1 or 2
 - Each subject can only be chosen 2 times!
 - (so for each subject, two groups will do the same assignment)
- Group 5: subject 3

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Evaluation

- Next week (27/03/2019):
 - Project planning and splitting of tasks to group members
- During lab sessions:
 - Attitude
 - Group mentality
- End evaluation:
 - Presentation (21/05/2019)
 - Report (31/05/2019)
 - Single report. Indicate which sections have been written by whom.

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