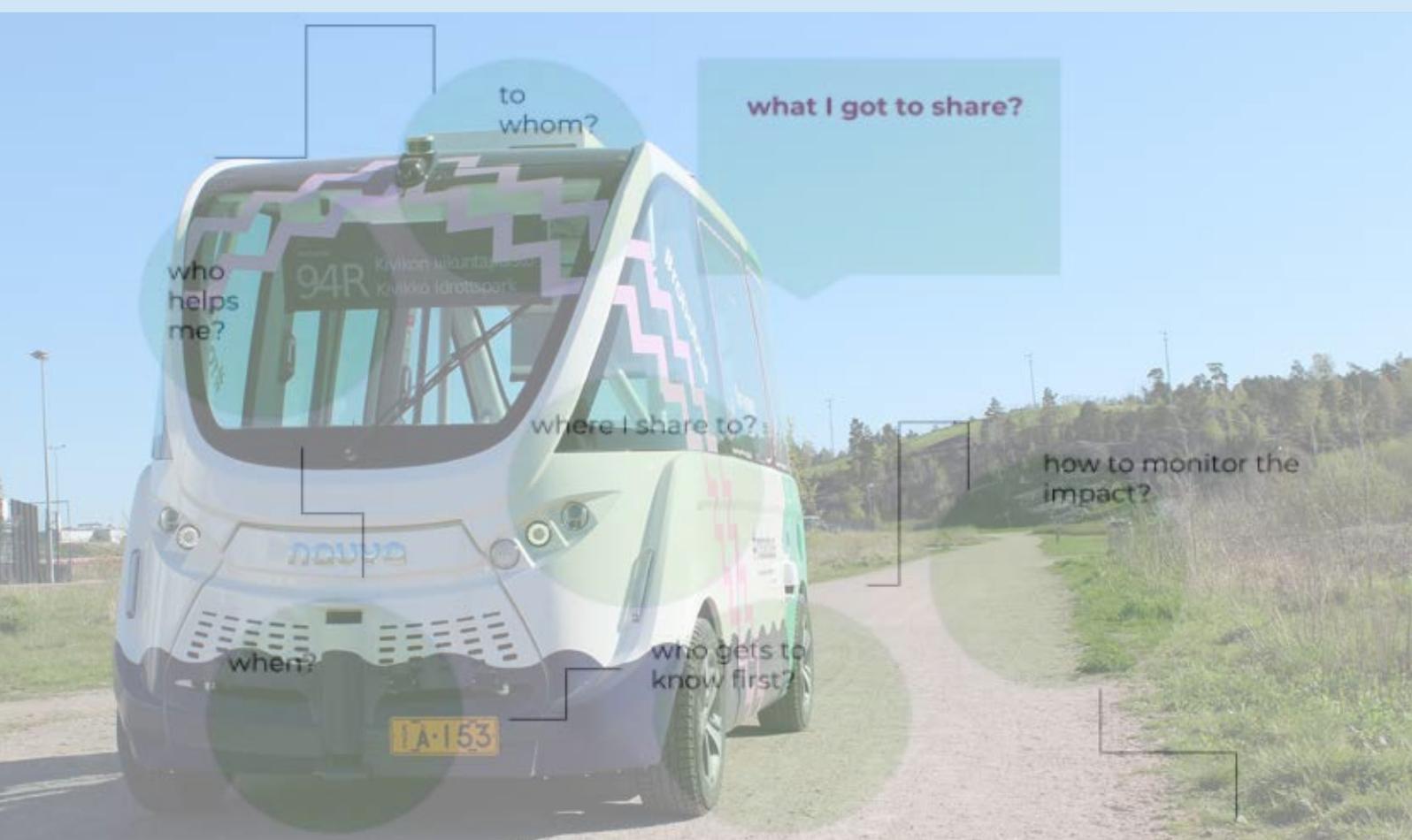


SOHJOA BALTIC

AUTOMATED ELECTRIC MINIBUS OPERATORS' COMMUNICATIONS GUIDE



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Publisher: Metropolia University of Applied Sciences, 2018

Cover, photos, graphic design: Milla Åman

ISBN 978-952-328-117-2 (pdf)

www.metropolia.fi/publications
sohjoabaltic.eu

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INTRODUCTION TO AUTOMATED ELECTRIC MINIBUS OPERATORS' COMMUNICATIONS GUIDE

Electric, automated minibuses (or shuttles) have been used as a solution for the first/last mile public transportation needs in various places. The technology of these buses is still not mature enough to give all the responsibility to the vehicle itself. That's why there is a human operator (or steward) inside the robotbus.

In this guide for the automated electric minibus operators, the most common passenger questions are collected, with suggestions of answers. They are served on a scale of minimum knowledge level to extremely enlightening dissemination of vehicle features and general information concerning the phenomena of smart mobility.

The work of an automated electric minibus operator is focused mostly, but not limited only, to the vehicle and passenger safety on open road, in real-life traffic conditions. The operator's role is also being the guide inside the vehicle.

The operator's communicative role is important element as it sets the tone for the bus ride. Creating a positive atmosphere for passengers, who might be taking the robotbus ride first time in their lives, is based on trust. The element of trust is not based just on tech features. It's also providing a transportation service, sharing information and sharing an experience. The public attitude towards automated vehicles in general may well be build from these first-wave individual passenger experiences.

In this publication, two automotive engineers from Metropolia University of Applied Sciences, Azat Ismailogullari (licenced operator trainer of Navya buses) and Eetu Rutanen (project manager, Helsinki RobobusLine) share their expertise of everyday work as an robotbus operator. In addition, communications specialist Milla Åman (communications manager, Sohjoa Baltic) shares her knowledge about successful communication in various situations with robotbuses. Metropolia University of Applied Sciecens started in 2015 the automated minibus trials in Finland. This guide is based on previous experiences and the collective mind of Metropolia's operators was used to identify the list of "Most asked questions".

We hope this guidebook helps all of you working with robotbuses and automated mobility solutions: operators, cities, traffic and public transportation planners, businesses, start-ups, engineers and recruiters, as well as private car owners, professional drivers and users of public transportation.

In Helsinki, 24th October 2018

Milla Åman, Azat Ismailogullari, Eetu Rutanen

1. How to Become an Operator

Your employer has chosen an automated electric minibus for public transportation solution in open road traffic conditions. Your city most likely is behind this, so they recruit the robotbus operators. All operators need to have a driver's license.

Once you've chosen for the duty, you get an introduction to these automated vehicles. They are leased or bought from some of the bus manufacturers, who then give training courses to the operators, so you know how to operate their vehicle.

The route to your city's robotbus line will be constructed in phases: first, your city officials have to identify, where the intended route should run in order to serve passengers (and not cause traffic jams or disturb too much other road users.)

The city then negotiates with the bus manufacturer, if the chosen route is suitable in their perspective, for their vehicles. The technology might require less nature and more stable spots for the vehicle to locate itself while running its route. So, the entire bus route has to be created in collaboration with the bus manufacturer.

Once you've learned the basics of your vehicle's technical requirements, traffic arrangements, vehicle control, routing and operating system, it's time for your first test drives. You'll be coding the route with bus manufacturer on board.

After the route is sorted, it's time to go test-driving, with your fellow operators being your first passengers. The service will be opened for public once everything really works safely and smoothly.

Finally, you are operating the bus with actual passengers onboard, in real-life traffic. Keep calm and follow instructions. Safety first is a good advice to follow. No matter what you've expected, you'll never be prepared enough. It's more than operating the vehicle and taking care of the passenger safety: you'll find yourself answering all the questions coming from passengers, media, delegates, and the granny next door.

Remember - You are now in charge of everything what's happening inside the shuttle, while operating the robotbus. This guide is to give you some advice, but you'll never gain all the wisdom of robotbus operating from a book. You need to go and experience it yourself.

2. Inside the Automated Electric Minibus

This chapter based on Azat Ismailogullari's and Eetu Rutanen's experiences on working as an operator. They are automotive engineers from Helsinki, Metropolia University of Applied Sciences and have a significant amount of experience in operating robotbuses in Finland in various projects. Azat and Eetu share advice, how the work is done from daily perspectives and with some tips how to handle tricky situations while driving the Automated Electric Minibus.

BEFORE ENTERING THE ROAD

If and when there are a certain timetable that your robotbus should follow, it is important to be in good time on site to have an overall look on the vehicle.

Especially make sure that the windows and sensors are clean, always have cleaning tools at your fingertips. Also check (by eye) that tires have air.

Unplug the charging cable first from the power source and then from the shuttle (to avoid sparking in the shuttle connector). Be sure that you have unplugged charging cable and check the surroundings before you move the shuttle.

Before starting operation in automated mode, have another look to the screen that all the connections and systems are ready to operate (bus manufacturer/trainer will teach you these).

If you face any issues that you can not handle, contact the supervision team of the manufacturer and/or a local site manager, depending on the issue that you are facing.

If you spot vandalism done to the shuttle, contact your employer and local police.

COMMUNICATING WITH THE BUS MANUFACTURER (PROBLEM SITUATIONS)

When a problem occurs it should be reported to the manufacturer as soon as possible. You should not hesitate to tell about the problem, even if it seems insignificant.

Contact can be made by whatsapp, email or by phone. Don't get frustrated if the problem cannot be fixed right away. Sometimes it can take several weeks, depending on the situation. Of course the way in which the matter is expressed in the direction of the manufacturer can accelerate the process.

You and the person who you are contacting may not have same mother language or culture, so try to be clear with the way you describe the problem. Pictures and videos can help a lot.

It might be better to ask for help by writing than calling, then you will have time to think and give proper answers and also if you receive instructions, you can read those as many times as needed.

GOING IN REAL-LIFE TRAFFIC CONDITIONS - READING THE TRAFFIC

Stay focused all the time and keep your eyes to the road. Do not play with your phone while operating.

Remember that the shuttle follows the traffic rules (programming) all the time, but other road users might ignore those rules from time to time.

If talking to the passengers weakens your concentration, tell them that you have to focus on operating, but you are happy to answer their questions later - operating safely is your top priority!

After time you will learn the behaviour of the shuttle in different areas of the site and you start to feel more confident, but it is important to stay alert always, do not be one of the passengers.

Do not take any unnecessary risks, for example rush when entering a junction even if you were behind the schedule. If you notice abnormal behaviour of the shuttle or weather conditions clearly exceeds the capabilities (told by the manufacturer) for example when it is raining, stop the operation and if necessary, drive the shuttle manually to a safe location.

INSIDE THE VEHICLE WITH DIFFERENT KINDS OF PEOPLE AND GROUPS

Depending on the route characteristics and especially the speed of the shuttle, it is important that all passengers are sitting inside the bus, if this has been agreed, and extra passengers (if driving on open roads among other vehicles not more than stated in your national road traffic legislation) are not taken onboard.

This applies both to ordinary passengers and even for example to a president visiting the site. The operator has the highest decision power inside the bus as he/she is actually the responsible driver and answerable in first hand of every situation.

Sometimes you might hear conversations that are not ment to be public, keep this information to yourself.

COMMUNICATION WITH OTHER ROAD USERS

Sometimes people might park their vehicles on the path of the shuttle. In this case, stop the shuttle on a safe location and try to find who is responsible of that vehicle. If you can continue operating simply just by overtaking the vehicle, it is not necessarily to immediately start searching the owner of the vehicle.

You can drive another round and see if the vehicle has moved during this time. When you find the right person, ask him/her kindly to move the vehicle and explain why it needs to be done. There are always people driving on the same path as the shuttle who do not like this kind of technology, they can honk to the shuttle but rarely nobody comes in person to say something bad. If this happens, keep calm and do not lose your temper.

Activities at the end of the day

After the operating is done for the day, park the shuttle safely in the depository. Check that everything is ok with the shuttle and plug in the charging cable, if needed. If the shuttle can be on during charging, it is good to check from the onboard screen that it is really charging or follow another procedure (told by the manufacturer) for checking this. Connect the charging cable first to the shuttle and then to the power source (to avoid sparking in the shuttle connector). Remember to check that both ends of the cable are plugged correctly. Wait and see that the shuttle shuts down completely before leaving (it may take couple minutes).

ROBOTBUS PROJECTS IN HELSINKI, FINLAND

If you visit Helsinki during the non-winterish seasons of 2018-2020, you find projects like Helsinki RobobusLine or Sohjoa Baltic by following @automatedbusFI on Twitter or Facebook.

3. Core Frequently Asked Questions

3.1 How does this work?

Not recommended answer:
“I don’t know. Ask my boss.”

Basics

This is an electronic, automated vehicle. It has pre-coded route that it follows. It has sensors and Lidars it uses to scan the surroundings, so it knows if there is any obstacles on the way. It knows if it should slow down or stop completely.

Advanced

★ Additional info:

It uses lidars and lasers to scan surroundings. Sensors are located on rooftop and in each corner of the vehicle.

★ More additional info:

It uses satellite / satellites / 4G / 5G / for locating itself

★ Best case scenario:

Complete your own, perfect pitch, providing more interesting facts!

3.2 What if I jump in front of it?

Not recommended answer:
“Wouldn’t do that if I were you.”

Basics

This vehicle scans its surroundings and when detecting an obstacle, it stops fast - even for the smallest of reasons.

Advanced

★ Additional info:

The vehicle might also slow down for smallest of reasons.

Strong braking can be annoying for the passengers (and it increases the risk of rear-end collision, if someone is driving too close to the shuttle).

★ More additional info:

That said, this is the reason why we run these buses quite slowly.

And why the passengers should be seated at all times and wear a seat belt, if possible.

★ Best case scenario:

Complete your own, perfect pitch, providing more interesting facts!

3.3 Why there is a driver inside?

Not recommended answer:
“Just for safety.”

Basics

We are using a technology that is new and not common in our traffic conditions yet. The vehicle is not yet so smart it could cope in every situation on its own.

Advanced

★ Additional info:

That said, the vehicle does not re-route itself. If there is an obstacle on the way, human operator may take control and just drive manually pass the obstacle.

★ More additional info:

We aim to enlighten passengers about this vehicle and our project. And it's nice to answer your other questions concerning this trial, too.

★ Best case scenario:

Complete your own, perfect pitch, providing more interesting facts!

3.4 Where does this go? Do I need a ticket?

Not recommended answer:
“Hop on and you’ll see.”

Basics

From here to location X through Y and also stopping at Z. No tickets are needed as this is just a trial. This is operated by our city as part of our project.

Advanced

★ Additional info:

We have room for maximum of (X) passengers at a time. We run (X) times per hour, from X to Z, during (week-days/weekends).

★ More additional info:

You get detailed timetable, route (and delays) information from X

★ Best case scenario:

Know the source of accurate timetable information and where the passengers can find it.

Check, to whom you should inform about delays or cancellations if you don’t update this information yourself.

Also, carry info leaflets inside the bus, sometimes it’s most convenient way to deliver information to passengers.

3.5 How fast this goes? Why so slow?

Not recommended answer:
“It’s fast enough.”

Basics

This vehicle may run up to XXkm/h, we run here YYkm/h. The bus manufacturer has set the limits.

Advanced

★ Additional info:

The traffic conditions here enable us to go this fast.
(For example, road-side parking and intersections may be restricting speed.)

★ Best case scenario:

Complete your own, perfect pitch!

★ More additional info:

Going any faster and having a strong brake might cause damage to the passengers inside.

3.6 How long this runs on full battery? How long it takes to charge it?

Not recommended answer:
“Some hours”

Basics

This particular vehicle runs XX hours when fully charged. We charge it overnight and so it takes about YY hours to get it ready.

Advanced

★ Additional info:

We run here daily XX hours and on our route it is about YY kilometres per day.

★ More additional info:

The charger is actually plugged in to a regular socket on the wall so it is quite easy to get it done where ever. We will not be running on lower than ZZ% of battery capacity.

★ Best case scenario:

Complete your own, perfect pitch. It could show examples of locally experienced conditions (climate, weather, terrain) affecting the battery usage.

3.7 Are you making bus / taxi drivers unemployed?

Not recommended answer:
“No, you silly.”

Basics

We're aiming to test these vehicles in our local real life traffic conditions, not make anyone unemployed.

Advanced

★ Additional info:

These are the first generation vehicles.

Takes time to develop them so they manage in mixed traffic completely on their own. Human is needed inside.

★ More additional info:

We are now testing one type of smarter public transportation solution and most likely, what ever cities choose to do, the new solutions need human labour in the future, too.

★ Another point of view:

We can't predict the future, but most likely all fields of trade will have some impact as automation develops. So, most likely all of us need to update our skills and knowledge in order to keep up with the future demands in working life.

3.8 Who pays for this bus here?

Not recommended answer:
“Our city, I guess.”

Basics

Know the source of your funding. It is critical to know if the city, EU or the local bus company has made the investments. You never know when an investor hops in.

Advanced

★ Additional info:

Why are you using this type of vehicle - to test or implement smarter public transportation solutions and lower emissions with these electronic, automated vehicles.

★ More additional info:

It's a nice addition if background information can be shared. For example, Sohjoa Baltic trials take place in Gdansk, Helsinki, Kongsberg, Tallinn, Vejle and Zemgale.

★ Good to know:

These buses are still a new type of vehicles and it takes time for them to mature to become an everyday solution.

The Smart Mobility is still a developing industry. Before becoming an everyday mobility option, the work involves planning public transport service chains, collaboration of authorities, city planning, new technology, start-ups, car companies, insurance and legal experts to collaborate.

For example in Helsinki there are currently running national and international projects aiming to develop and study in collaboration with universities, experts, traffic and public transportation authorities as well as many private companies, what should happen technically, legally and behaviour-wise, to make fully automated transportation possible in our cities.

4. Feedback Comes in Various Forms

Feedback

Operator will receive all sorts of feedback from passengers, public, other road users, cyclists, automobilists, regular bus, tram, truck and lorry drivers, delegates, and authorities. Staying professional, relying on facts and remaining neutral is always a good starting point. Sometimes you might get provoked. Avoid getting involved in politics or arguments.

Your safety is your right and your passengers safety is your duty.

You are in charge of the events inside your vehicle. It does not mean you should be a police officer!

If the “feedback” is about to get insulting, or physical, try to get rid of the situation.

We understand conflicts may occur. Keep yourself and your passengers safe at all times.

This might mean you need to ask someone to leave the vehicle, if so, do it with caution. If needed, stop operating the vehicle, advice other passengers to leave, and consult authorities in order to remove the unwanted person.

As an operator you should know your facts. Never speak of things you are not certain of. But it could be useful to know, who might know!

No one wants to spread false information. Not even by mistake.

We want to learn the passengers’ thinking

Most likely your employer wishes to collect data and conduct a survey for the passengers. Operator’s role could involve encouraging people to give feedback, to fill out a survey. Decision-making requires validated and relevant feedback from target groups. However, as an operator this is always your secondary task.

5. Crisis Communications

Before anything:

Make sure your management has given you clear guidance for critical situations and you have all the tools you need to follow those guidelines.

Clarify Yourself:

Safety instructions – may be given to you by city, authorities, robotbus manufacturer. Make sure they all are clear. If you find any conflicting instructions, please ask for clarification.

Emergency situations – call your local emergency number and follow their instructions.

Crisis Communications – make sure you know your role. Usually in an emergency situation authorities (police) give statements to media. You should never be the person who talks to media in a crisis situation - especially if you are involved in a collision or an accident.

On employer's behalf there must be a chosen spokesperson who will give the official statements, when and if needed.

6. Communication Methods

Creating a travelling experience is build from various variables: the vehicle, your performance, other passengers,... Staying calm at all situations makes it easy to present yourself as a professional. You don't need to know all. But all the passengers get to learn during the ride, is coming straight from you. All interaction with passengers is face-to-face communications. Others will notice not just your words, but the non-verbal communication, body language, facial expressions, tone of voice.

Online. Most of the robotbus routes running are still trials, demonstrations or projects. They usually need to gain online visibility. Check from your managers, which channels are used and do they wish you to participate in content creation. Taking photos and sharing updates is a nice additional task for operators, but always ask permission before taking videos or photos of others and inform them where they will be published.

Media. You might end up on local news, some documentary or radio broadcast. Practice your pitching skills with a colleague, to keep talking relaxed but fact based. If you have strong opinions and want to express them to media, please state clearly that they are your personal opinions. However, it could be more hygienic to ask your employer's guidelines first, so you have been given the big picture and all the information you need in order to build your opinions on a solid ground.

International! The automated driving is still a novelty. It means a lot of delegates from abroad or tourists may hop on the robotbus. Can you explain all important stuff also in foreign languages?



In picture: Serious business? Delegates from Latvia visiting Helsinki robotbus projects.

7. Public Relations

Becoming the Face for the Automated Vehicle

The media will come, they film the robotbus and ask to interview you. What to do?

- It should be agreed with management that you are giving statements on the daily operations.
- Media could come from the other side of the globe. Consider how your language skills are. If needed, brush up your English, so you won't freeze in front of camera.
- Always ask to see the interview before they publish it, in order to correct the possible faults.
- Ask the media / journalist to inform you, where you find the published material.

Non-professionals

There could be passengers willing to go viral with mobile video. You may agree or decline to participate yourself, but in general it should be allowed for passengers to film their robotbus riding experience as long as they follow the safety regulations.

If you want to be super helpful, find out beforehand how drone zones effect and where the possible filming permissions are acquired from in your city.

How about You?

The profession of robotbus operator is still a new thing. You might fall in love with your job and publish some stuff to your social media channels. Just go ahead and do it - as long as you don't use your mobile phone while in traffic..!

Use your time smartly and take notes on your thoughts while working with this new field of mobility. One day someone might want to publish a book about it!

