

## PROJECT PRESENTATION

<b>1.</b>	<b>Program Title</b>	P.O. RO-MD 2014-2020
<b>2.</b>	<b>Call Title</b>	Grant contract Joint Operational Programme Romania– Republic of Moldova - financed by European Neighbourhood Instrument (ENI), Cross Border Cooperation (CBC)  3.1.2 Improved integrated ICT networks and facilities to support the cross–border connections  2 <sup>nd</sup> call for proposals – SOFT projects
<b>3.</b>	<b>Project Title</b>	Improving the cross-border public transportation using electric buses supplied with renewable energy - ELBUS
<b>4.</b>	<b>Project ID</b>	2SOFT/3.1/54
<b>5.</b>	<b>Project coordinator/ manager</b>	„Gheorghe Asachi” Technical University of Iasi, Romania - LB. Conf.dr.ing. Costică NIȚUCĂ – Leader - IEEIA
<b>6.</b>	<b>Consortium (if any)</b>	Technical University of Moldova, Chisinau, Republic of Moldova – B1.
<b>7.</b>	<b>Project budget – Total value (Lei/Euro)</b>	97.880,00 EUR
<b>8.</b>	<b>Project budget – TUIASI value (Lei/Euro)</b>	50.000,00 EUR
<b>9.</b>	<b>Implementation period</b>	Initial - 18 months; Extension - 3 months; Final - 21 months. Start date: 01.04.2020. End date: 30.03.2022.

10.	<b>Main objective/s</b>	<p>GO. Development of the cross-border public transportation using electric buses</p> <p>SO1 Development of the electric buses.</p> <p>SO2 Improving of the range for the electric buses using renewable energy.</p>
11.	<b>Project activity/es</b>	<p><u>G.A.No.1. Project management</u></p> <p>Activity A.1.1: Organizing the teams project and implementation of the project.</p> <p>Activity A.1.2: Monitoring, evaluation, technical report and financial report into the project.</p> <p>Activity A.1.3: Equipments acquisition and promotional materials.</p> <p><u>G.A.No.2. Information and Communication plan</u></p> <p>Activity A.2.1: Design and update of a web site, to disseminate the project progress and results.</p> <p>Activity A.2.2: Final scientific project seminars (communication) organized at „Gheorghe Asachi” Technical University of Iasi, Romania.</p> <p>Activity A.2.3: Workshops organized at Technical University of Moldova, Chisinau, Republic of Moldova.</p> <p>Activity A.2.4: Elaboration and dissemination of visibility materials.</p> <p><u>G.A.No.3. Analysis of the electric bus optimal functionality</u></p> <p>Activity A.3.1: Analysis of the electric buses.</p> <p>Activity A.3.2: Analysis of the auxiliary loads.</p> <p>Activity A.3.3: Thermal model of the indoor climatic environment.</p> <p>Activity A.3.4: Renewable energy for the batteries.</p> <p>Activity A.3.5: Elaborating a practical guideline regarding the improve of the energetical performances for an electric bus.</p> <p>Activity A.3.6: Work visit at Technical University of Moldova, Chisinau, Republic of Moldova.</p> <p>Activity A.3.7: Work visit at „Gheorghe Asachi” Technical University of Iasi, Romania.</p>

12.	<b>Project result/s</b>	<p><b>Outputs and results</b></p> <p><b>Project outputs</b></p> <p><b>Output 3.1.</b> Increasing the energy efficiency of the auxiliary loads – <b>1</b>;</p> <p><b>Output 3.2.</b> Increasing the overall energy efficiency of the electric bus – <b>1</b>.</p> <p><b>Project results</b></p> <p><b>1.</b> Improved automation system for auxiliary loads of the electric bus – <b>1</b>;</p> <p><b>2.</b> Advanced thermal model related to the climatic environment within the electric bus – <b>1</b>.</p> <p><b>Programme outputs according to the description in the project proposal</b></p> <p>Programme output 1. 3.1.4 Number of environmentally friendly (carbon-proofed) cross-border transport initiatives developed – <b>4</b>;</p> <p><b>Initiatives developed</b></p> <p><b>1.</b> Optimization of electric energy consumption – <b>1</b>;</p> <p><b>2.</b> Increasing of power efficiency – <b>1</b>;</p> <p><b>3.</b> Decreasing of the thermal losses – <b>1</b>;</p> <p><b>4.</b> Theoretical solution for using the renewable energy as an ecological solution for recharging the batteries of the electric bus from a system with photovoltaic panel – <b>1</b>.</p>
13.	<b>Project website (if any)</b>	<a href="http://www.elbus.ieeia.tuiasi.ro/">http://www.elbus.ieeia.tuiasi.ro/</a>
14.	<b>Project photo/s (if any)</b>	

## Moments from the implementation of the ELBUS project



Experimental moments of the TUIASI team.



Moments from  
the UTM team's  
working visit to  
TUIASI.  
Presentations.



Experimental moments of the UTM team.



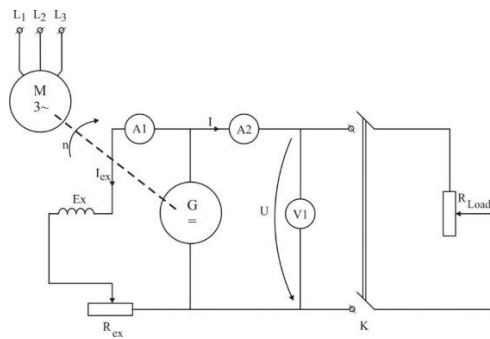
Moments with the two teams, TUIASI and UTM.



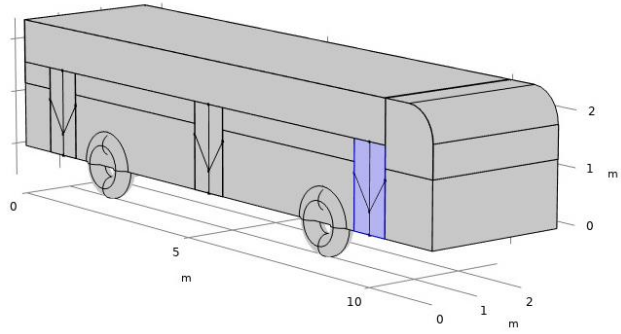
The overview of assembled in Chisinau trolleybuses.



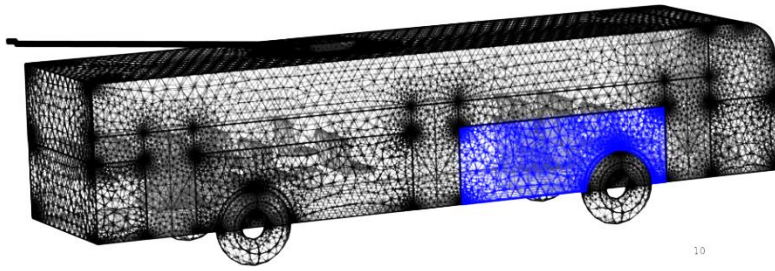
The saloon of the electric bus.



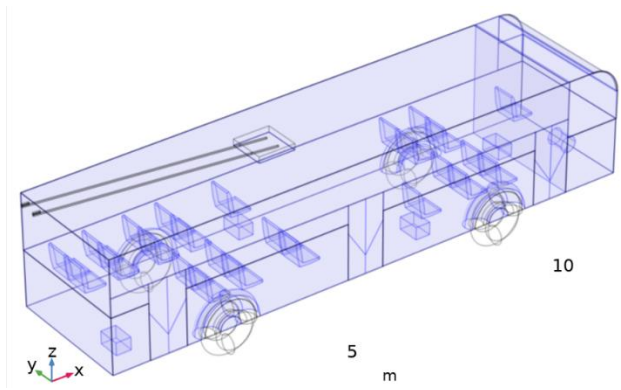
Electric diagram of the traction system drive structure.



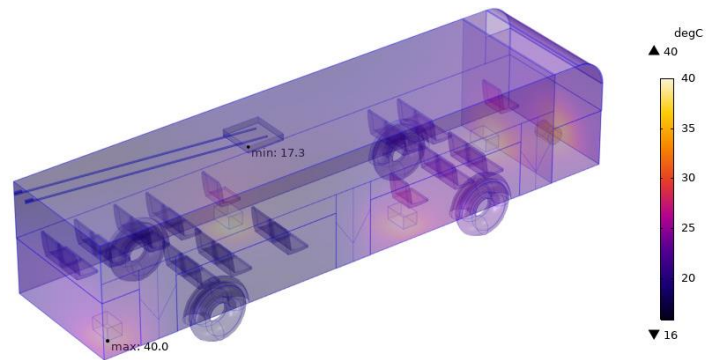
Non-transparency view of the geometry model.



Mesh with selection of a component from the structure.

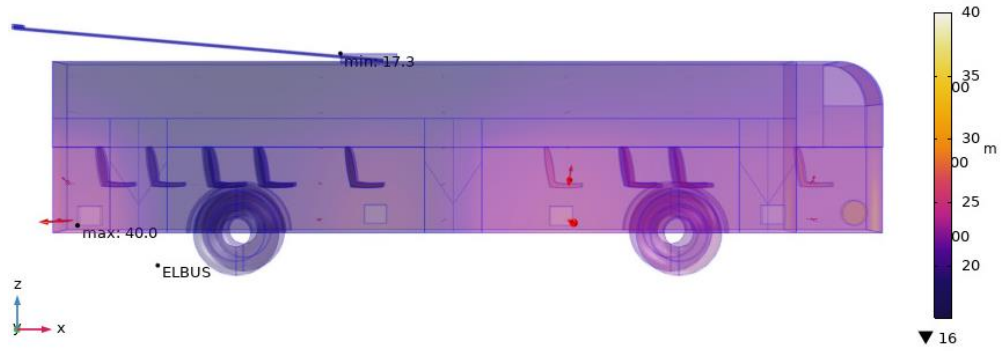


Air domain on the geometry model

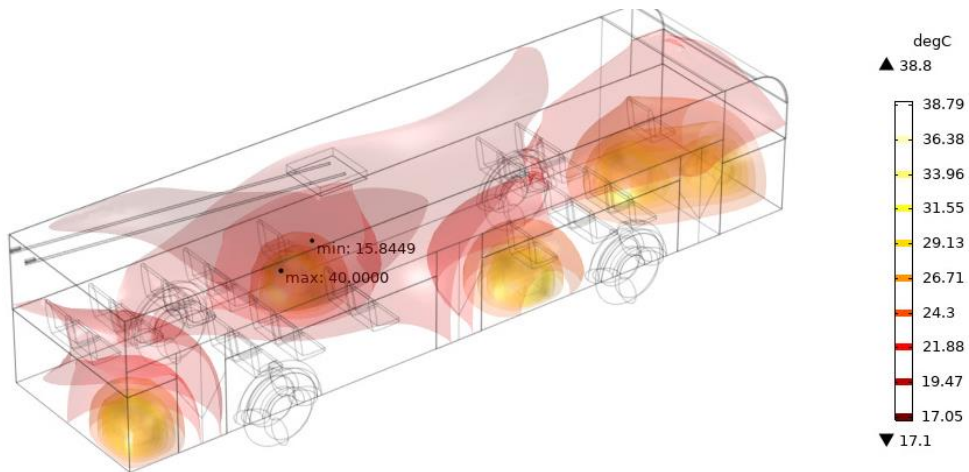


Temperature distribution on the bus (3D representation).





Temperature distribution on the bus; view from the right side.



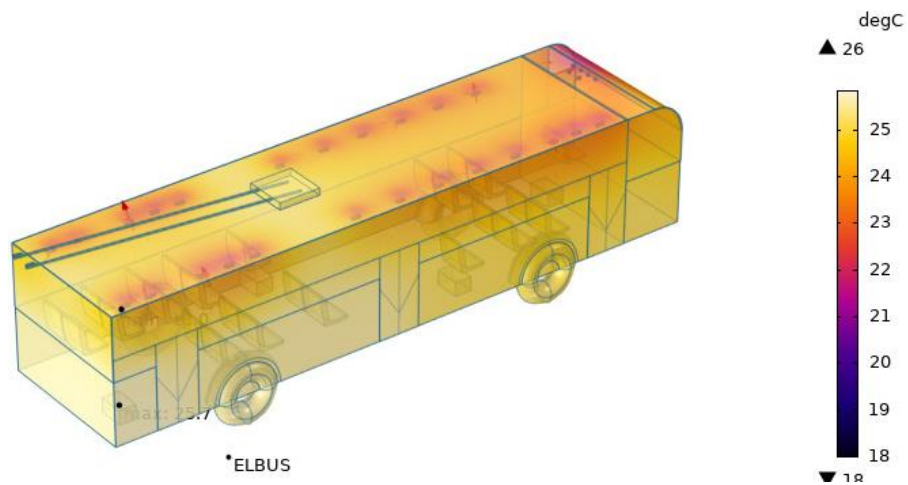
Isothermal surfaces inside the electric bus.



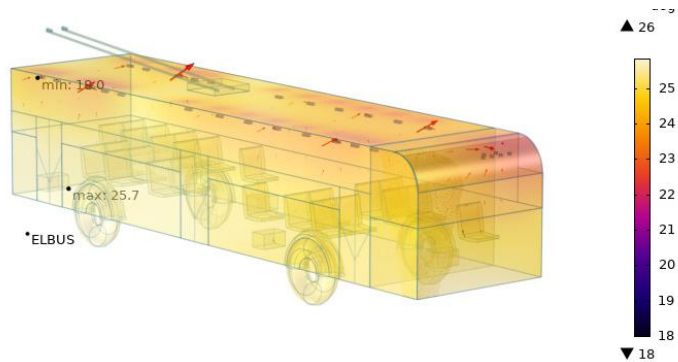
Measured temperatures inside the drivers' cabin.



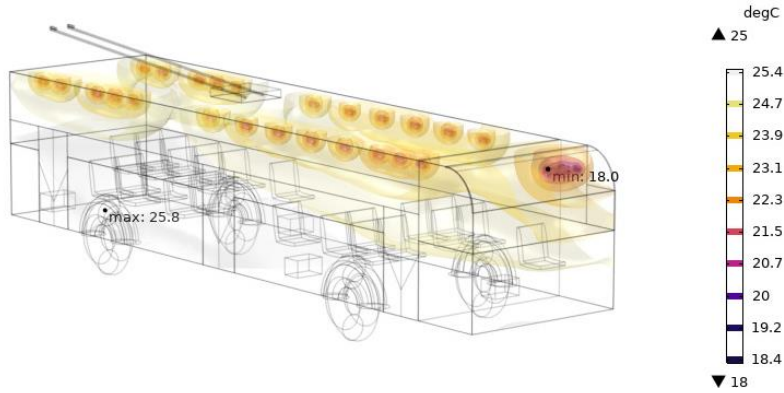
Measured temperatures inside the electric bus.



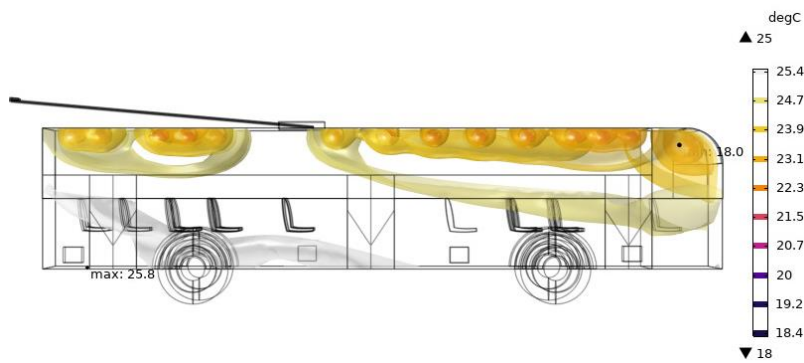
Thermal map of the air conditioning system inside the electric bus; right view.



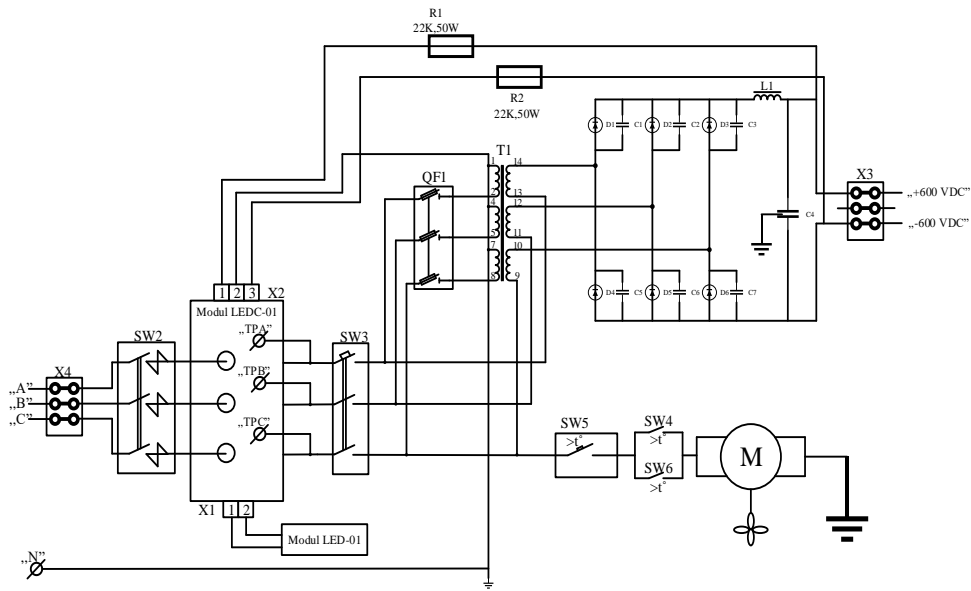
Thermal map of the air conditioning system inside the electric bus; left view.



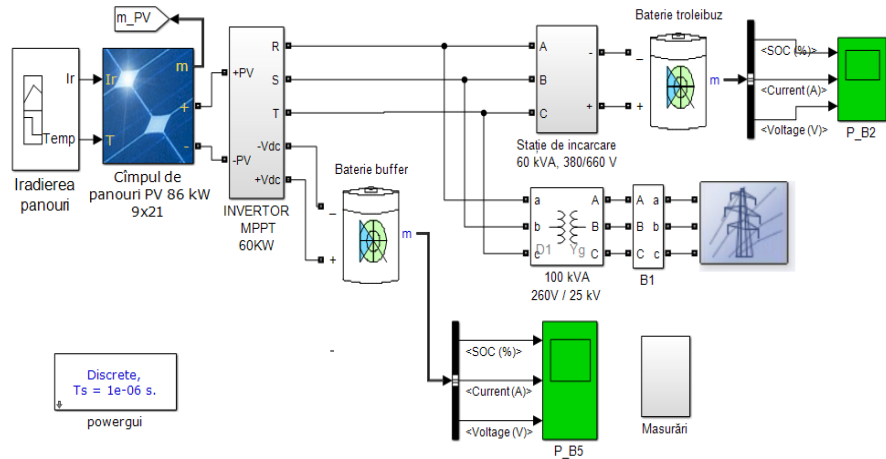
Isothermal contour for the air conditioning system inside the electric bus; right view.



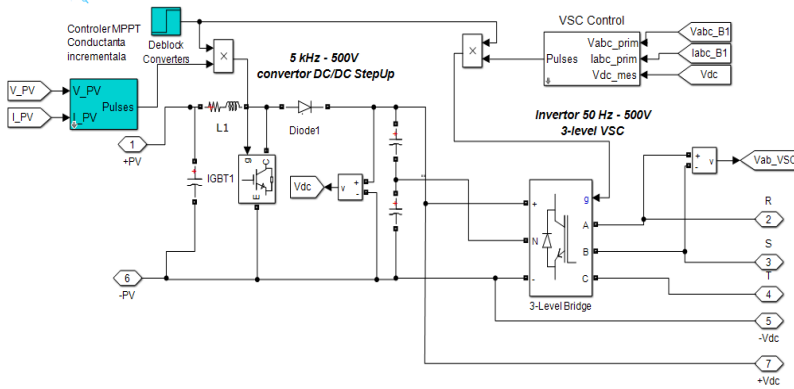
Isothermal contour for the air conditioning system inside the electric bus; right view, 2D image.



The charging station scheme in the Singera town at the moment.



The SimPowerSystem model of the charging station integrated with a photovoltaic park



The SimPowerSystem model of the Inverter synchronized with power grid.