PKS Lubin S.A. is an enterprise providing public motor transport for carrying passengers on urban, sub-urban and regional area. Currently company hires 300 people.

Company is operating in 7 communes of Lower Silesia region: Lubin, Polkowice, Chocianów, Ścinawa, Rudna, Gromadka.

Source: www.pks.lubin.pl
Every bus is equipped with an on-board computer. It enables to perform tasks and monitor the status, result and punctuality of the mission. Afterwards the data concerning punctuality is displayed for the passengers on an information panel at the station, in mobile application and on website along with current timetable. Implemented control software enables to operate the destination and information panels and to manage the automatic announcement systems.

The key features of the on-board computer are:

- Schedule display of the current route with indication of stops – already executed and planned – along with departure time and punctuality status;
- Timetables display of the selected stops;
- Sharing the driver the details of the tasks being executed;
- Managing the notification display on the information panel by the driver;
- Operating the announcement playback in voice announcement system (voice announcements are predefined by the system administrator);
- Two-way communication between the driver and the dispatcher;
- Printing the bus tickets (cash register module) and ticket sales reports.

Main menu of the on-board computer system

List of stops in-progress of the current route with departure time and punctuality indication
Passenger information system implemented by Elte GPS includes:

- Information panels at the stations,
- Information panels with voice announcement system in buses,
- Website dedicated for passengers,
- Mobile application with passenger information module.

/ INFORMATION PANELS AT THE STATIONS

Thanks to the one and two-sided information panels at the stations, passengers are able to check the next departures from their station, air temperature or public traffic disruption.

Information regarding timetables are dynamically and automatically corrected considering the changes occurring for the lines concerned, e.g. delay. This enables to present the real departure time for the passengers, which takes into the account any deviation from the timetable.

Every panel has the light and temperature sensor, which allows to adjust the brightness to the weather conditions.

/ INFORMATION PANELS WITH THE VOICE ANNOUNCEMENT SYSTEM IN BUSES

Current location of the vehicle (and more) in visual form is provided by the electronic information panels in buses – LCD screens. With the panels there is an automatic announcement system for voice notifications.

Information regarding date, hour and current location of the bus is presented on the screens in two ways: on public transport scheme and on city map. Panels are also displaying the nearest connecting points with departure time of the lines from those points.

Depending on the bus, the screens are also presenting the notifications, alerts and advertisements.

Solution guarantees the full synchronisation with current location of the bus relative to the bus stop according to the route of the line.
Through the website passengers have access to detailed map of the area, on which public transport services are provided. Map displays all the stops with current positions of the active vehicles along with the time of delay in comparison with timetable. Website allows direct print of the timetable for selected stops and lines.

**On-line portal enables the passengers to check:**

- Information about timetable of the selected line with current route display, actual time on the current stop and estimated departure time on next stops.
- Additional notifications or alerts for passengers, e.g. changes of the routes or line suspension.

Especially for one of our clients, ELTE GPS has created the software for handheld devices, such as mobile phones and tablets working under iOS, Android and Windows. The application operates in online mode using GPS technology, it determines the position of the user and recognizes the station at which he’s located or searches for the nearest ones.

The App, in cooperation with server software, enables the passengers waiting at the bus stop or in its proximity quick access to current timetable of the lines arriving on this station.

Software also allows to display the real bus position of the selected line with estimated arrival time at the bus stop.

Additionally, the application user is able to view the same information provided on the information panel at the bus stop. In case the panel is not available, the app is supplementary valuable source of passenger information.
Control system for transport services

Control system for transport services is a tool for control and settlement purposes, in which all data regarding public motor transport operations in Lubin is gathered. System is applicable to the monitoring and management of the motor transport not only for service provider, but also for local authorities which are administrator of public transport – in this case for Powiat Lubinński. ET Task Control determine the task completion and compares it with the timetable. It receives the data concerning executed routes, vehicles locations and stores the information, which is then shared in the reports and transmitted to the Passenger Information System.

In terms of control and settlement purposes, system has been developed to provide more features, which are also substantial:

- **Punctuality control**, which is a running tool analysing the execution of timetable, comparing current performance with planned schedule for the line/brigade. It allows to filter the data by vehicle or bus stop;

- **Reports module** which enables to create the reports on operating activity of public transport by line, bus stop, task, brigade and in given period of time;

- **Control of the text displayed on the information panel at the bus stop.**
Control and settlement module with justificaton feature

<table>
<thead>
<tr>
<th>No.</th>
<th>Date</th>
<th>Time</th>
<th>Station Arrived</th>
<th>Station Departed</th>
<th>Delay</th>
<th>Bus Stop No.</th>
<th>Task</th>
<th>Line</th>
<th>Remarks</th>
<th>Error or justificaton</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12/01/23</td>
<td>07:15</td>
<td>Station A</td>
<td>Station B</td>
<td>10</td>
<td>101</td>
<td>T1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>12/02/23</td>
<td>08:30</td>
<td>Station C</td>
<td>Station D</td>
<td>5</td>
<td>202</td>
<td>T2</td>
<td>2</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Control and settlement module with information regarding punctuality of the performed tasks by the service provider.
Elte GPS is an experienced manufacturer and provider of telematics systems implementations for various companies from different industrial sectors, security services and municipalities.

We offer complex systems which combine state-of-the-art technology and computer science, support and monitor the processes of service provision, optimize the use of resources, and enhance the logistics of transport and communication. All this leads to lower costs, higher quality and increase in satisfaction of your customers.

As the manufacturer of both software and hardware system components, we can guarantee flexible and customized solutions that meet your individual needs, and allow for further expansion and continuous upgrade.

The top level of our services, high quality components and professional warranty and post-warranty service have been appreciated by our numerous customers.