



AR ELEKTRONIKA

LETUGO

LetUgo v4.4.0

User's Manual v2.8

2012. March



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1. Introduction

LetUgo is an automated entry and exit control software product. During the development of the application the main emphasis was put on quick and simple setup and manageability of the application. The LetUgo program provides the following features:

- creating complex entry rules (permission and prohibition),
- recording and storing entry and exit events (image, license plate number, time and location),
- to retrieve subsequently, list and export events,
- determining the time spent in the parking facility and the payable parking fee,
- setting the access privileges,
- opening gates and barriers manually.

The main purpose was to create an entry system that is built up of as few components as possible but still provides an easy to use, completely automated and fast management of vehicles.

Essential elements of the system are:

- digital license plate reader camera;
- entry and exit control gate technology (barrier, garage door etc.) installed with inductive loop (requirement: capable of sending contact signal);
- LetUgo software system (with the Carmen Parking Digital license plate reader engine);

System requirements: P4 2GHz CPU or equivalent, 1GB RAM (2GB for Windows 7), 100Mbit/sec or better LAN connection, Ethernet switch in case of more cameras, min. 1 available USB port (v2.0), min. 30GB HDD (approx. 30Mbytes for the application, the rest is for storing images, etc.), Windows XP SP3 or Windows 7 OS, HD ready (1366x768) or Full HD (1920x1080) screen resolution, 64MB dedicated video RAM.

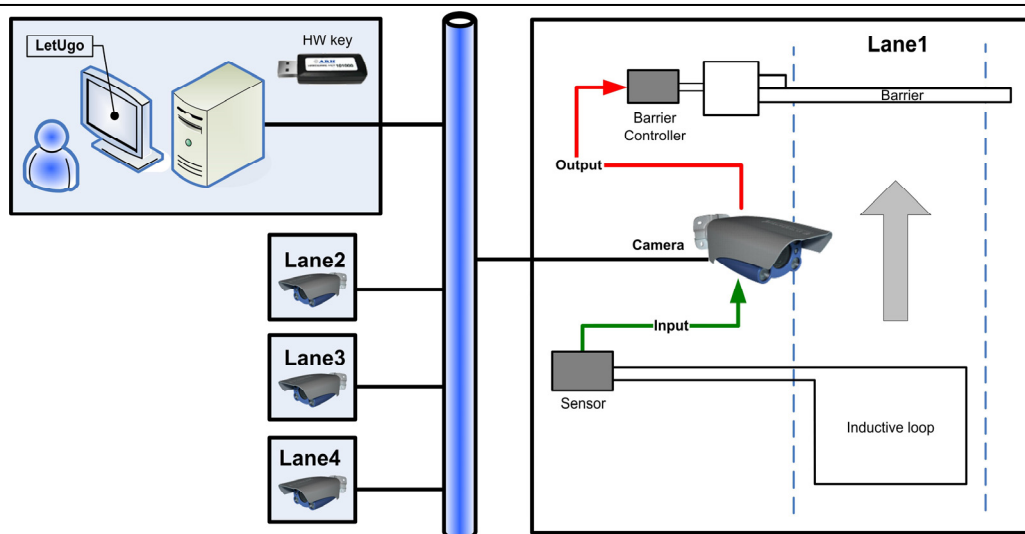


Figure 1: structure of the LetUgo

2. Installation

1. The install program starts automatically after inserting the disc into the optical drive. The following window will appear:

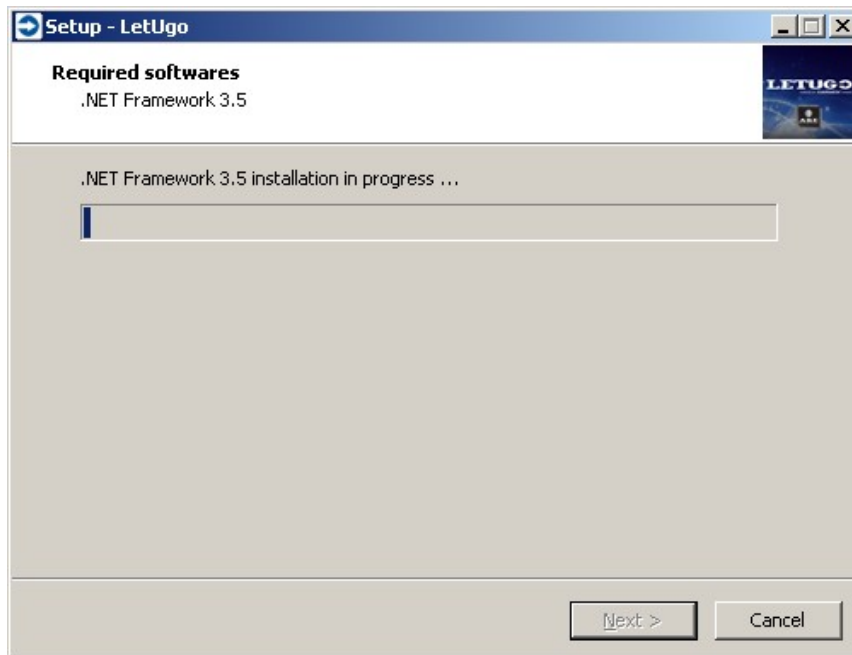


If the AutoRun is disabled, navigate to the CD-ROM drive and double-click on "CD\\INSTALL\\LetUgo_Setup.exe".

2. In the next window the END-USER LICENSE AGREEMENT must be read. Select **I accept the agreement** (I agree to the terms of this Agreement) to accept the agreement and then click the **[Next]** button to continue the installation process!

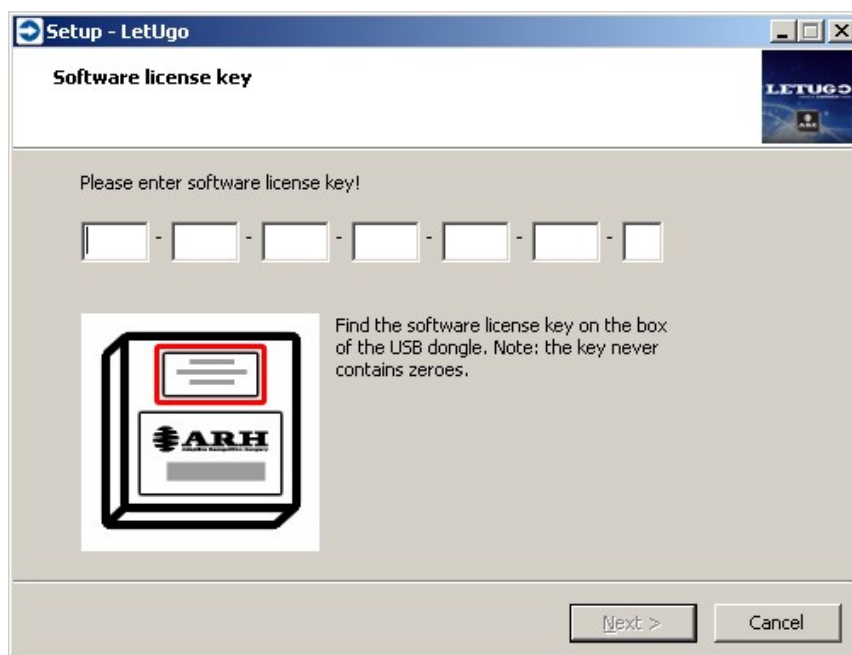


3. In the next step, the setup searches for .NET framework on the computer and installs it automatically if it is not available. During installation of the programs the following window will appear.

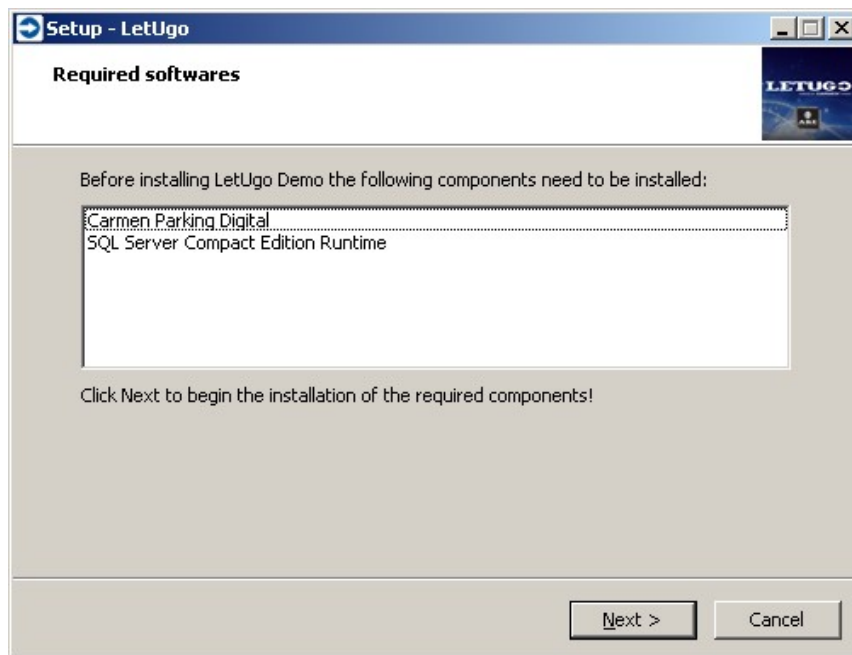


4. After installation of the .NET framework enter the license key. The license key is a 26-digit alphanumeric character string, which is delivered with the product. The field of the license key is divided into sections (6x4 + 1x2) to ease typing the key.

NOTE! The license key is valid only with the USB dongle, purchased for the software!
The license key never contains zeroes and it can be found on the box of the USB dongle.

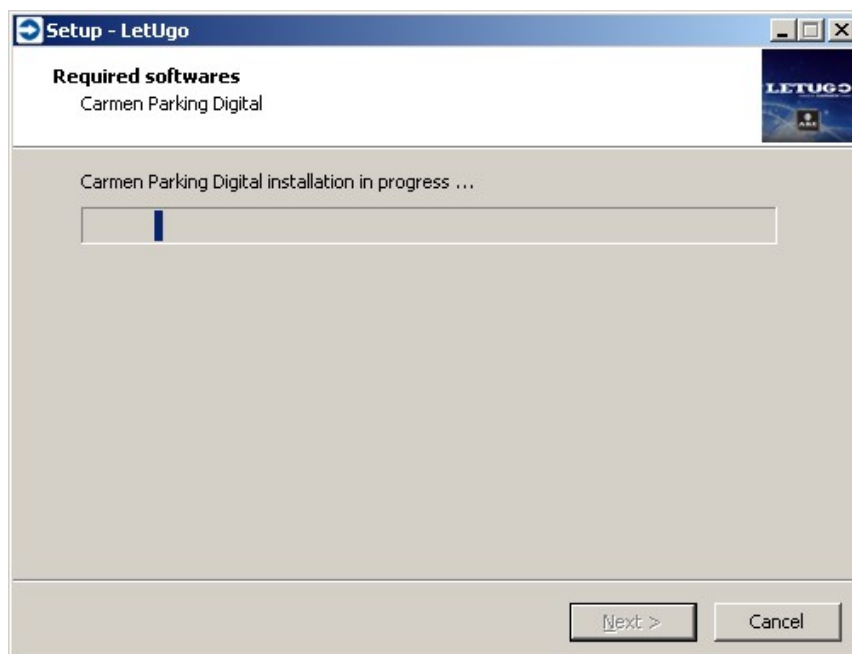


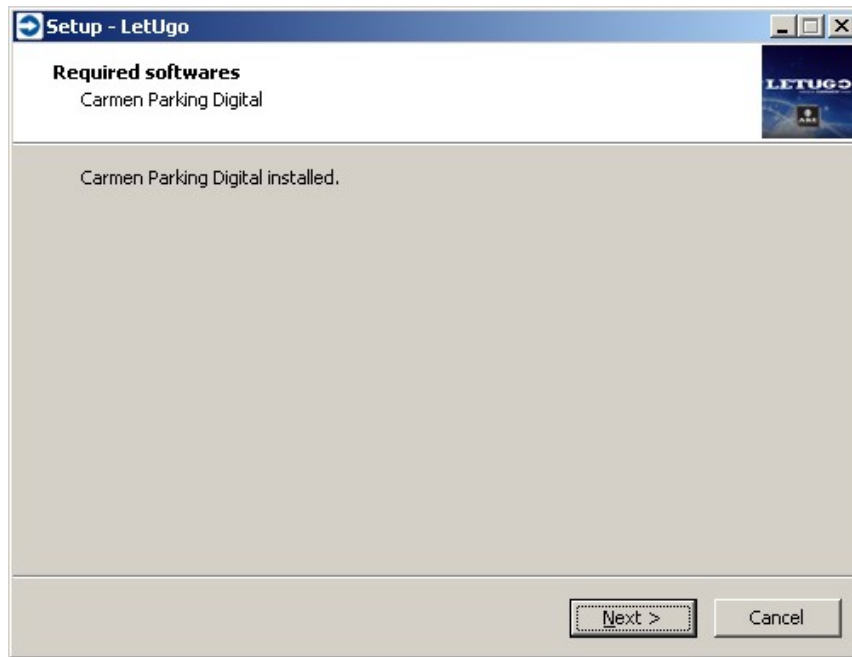
5. After typing the 26 character long license key click the **[Next]** button! As a next step the installer searches for already installed programs necessary for running LetUgo. In the next window the list of programs that are not installed (but required) will appear.



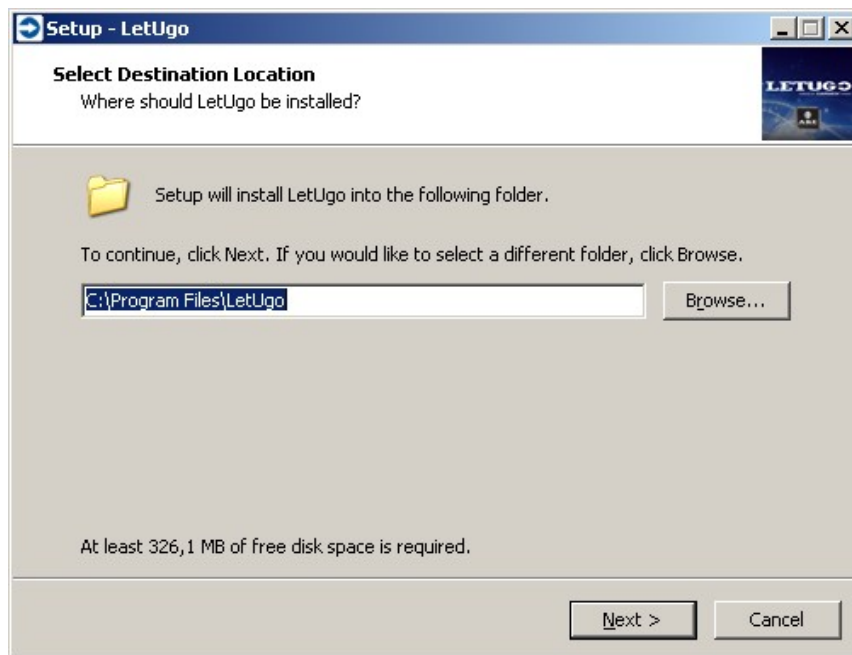
Click the **[Cancel]** button to cancel the installation.

6. To start installation process of missing components, click the **[Next]** button. During installation of the programs the following window will appear.

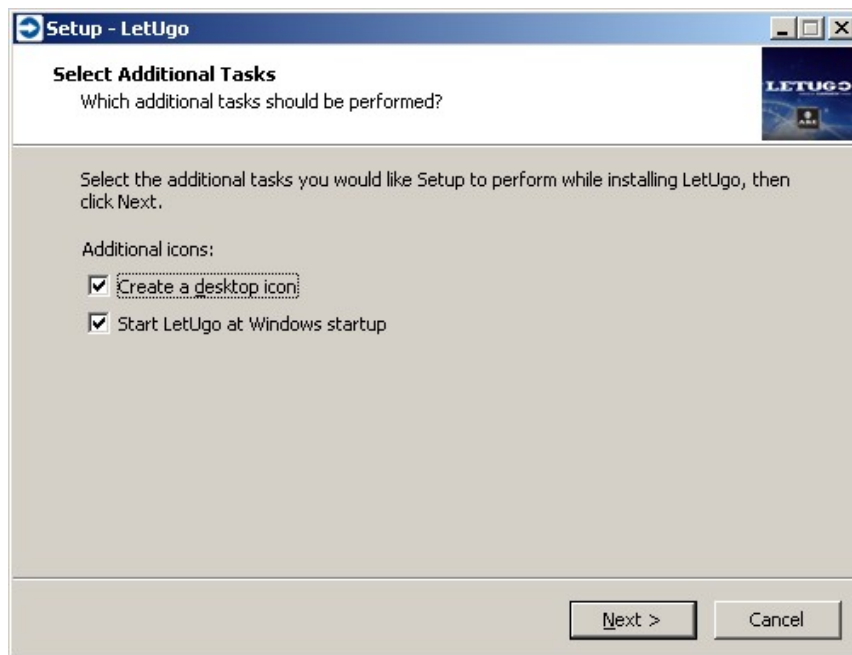




7. The destination folder can be selected in the following window.

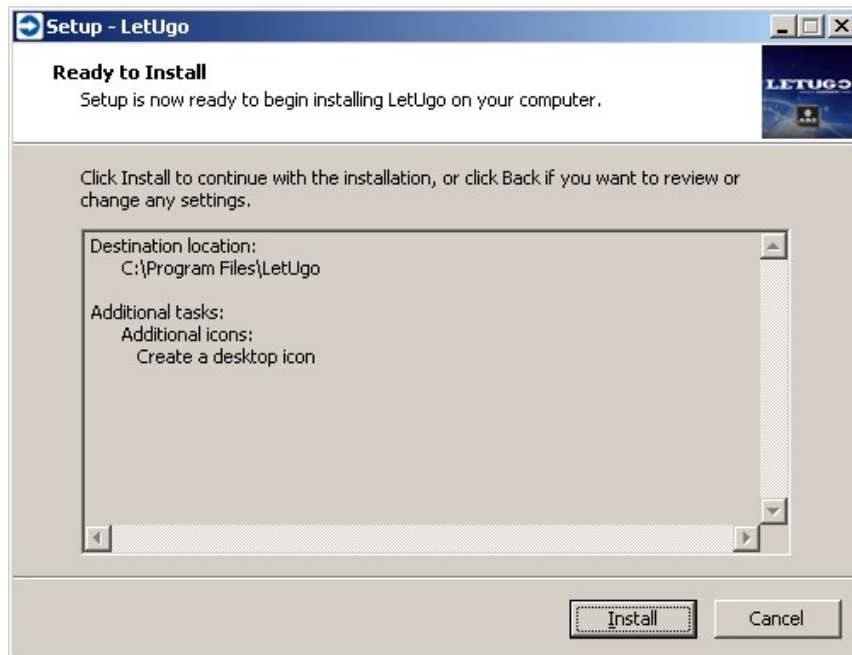


8. In the next window some tasks can be selected to be performed after installation.

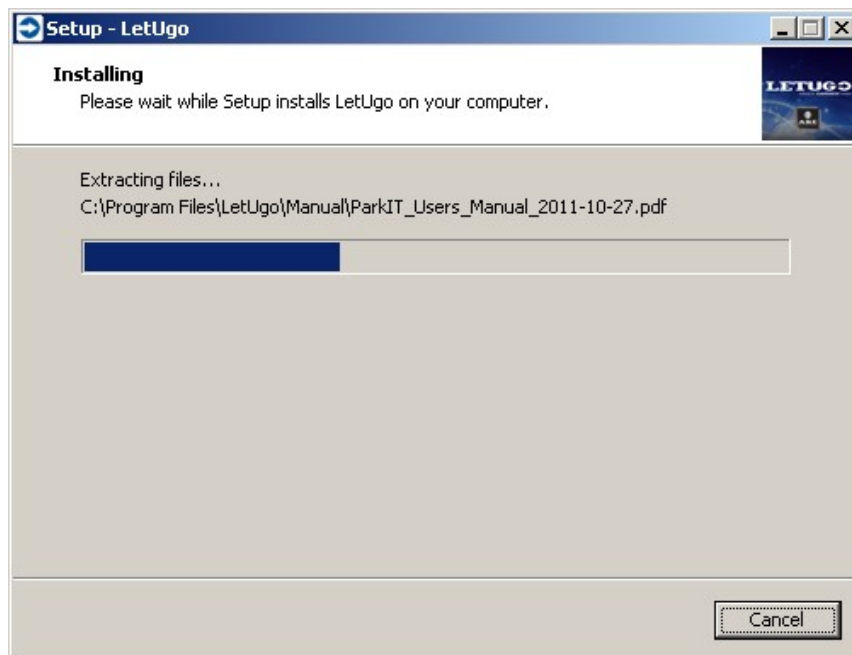


- The setup program creates a LetUgo shortcut icon on the desktop by checking the **Create a desktop icon** checkbox.
- The LetUgo application starts automatically at Windows startup by checking the **Start LetUgo at Windows startup** checkbox.

9. Before starting the installation the destination folder can be checked. The installation starts after clicking the **[Install]** button.



10. During the installation the following window shows the current step of the process:



11. When the installation is complete the following window will appear. Use the checkboxes

- to open the LetUgo User Manual (View LetUgo User's Manual);
- to launch the application right after the installation has completed (Launch LetUgo).



12. To finish the installation click on the **[Finish]** button!

3. Main Screen of the LetUgo

After the application is started, the following main screen with the login window is displayed:



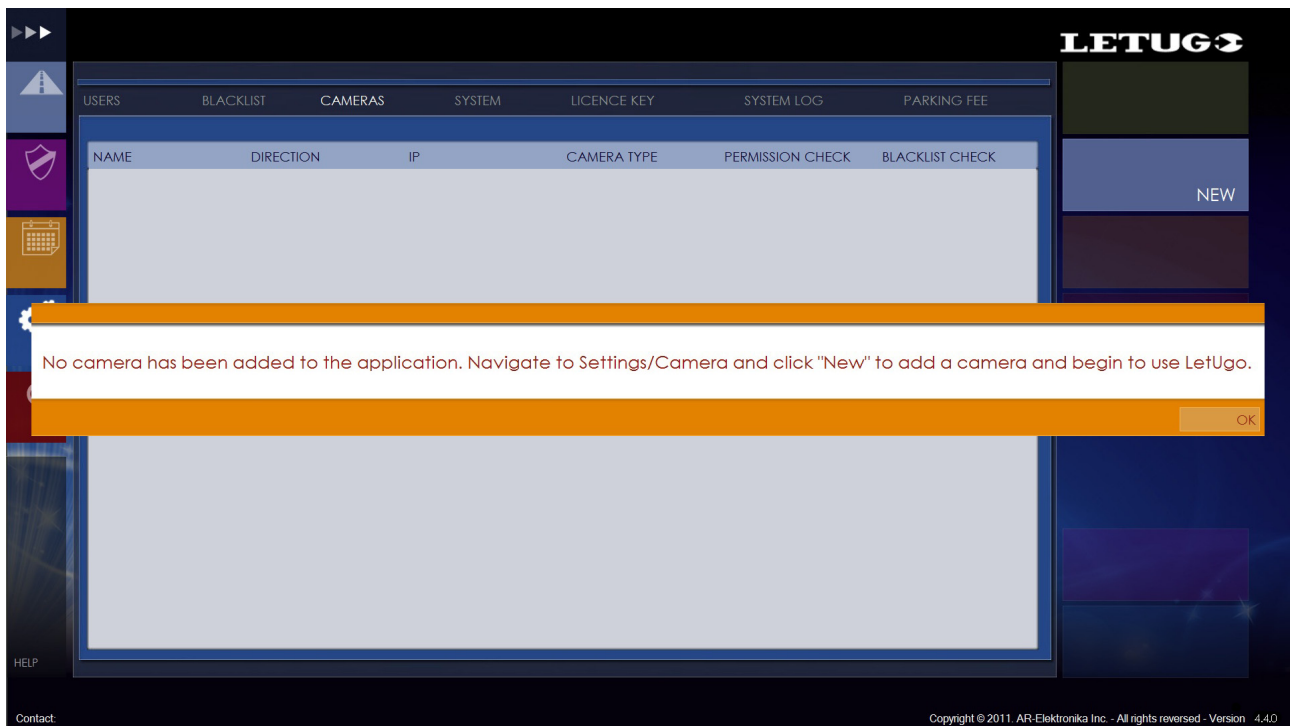
Enter the username and the password then click on the **[OK]** button to enter the program. The application can be closed by clicking the **[EXIT]** button.

NOTE! At the first login use **admin** login name and password to start using the program with administrator privileges. **Change the password after the installation! For more information on changing the password see the 4.4.1 Users menu item.**

The resolution of the application depends on the parameters of the used computer. The application will operate in a Full HD (1920x1080) resolution if it is possible. If the available screen resolution is less than Full HD, the application will operate in HD ready (1366x768) resolution.



If a camera is already added to the system, the **Lanes** menu will appear automatically after login. If not, the **Settings/Cameras** submenu will appear with a warning message (see below).



4. Menu Items

4.1 Lanes

By clicking the [**Lanes**] button in the left side, the following window will appear:

NOTE! The layout of the screen depends on the number of used cameras (4, 2 or 1 used camera(s)).

The color of the **Lane** menu indicates the current event. This button can be seen at all menus, so the operator can identify the following events:

- if the button is GREEN, a “Drive in” event is in progress (After a few seconds, it turns to the standard color),
- if the button is YELLOW or RED, the application is waiting for user intervention (On user intervention, it turns to the standard color).

In case of multiple camera usage the live image of the cameras can be seen parallel on the minified screens. These screens include the recognized plate text and an [**OPEN**] button signaling the type of the current event with its color:

- Green: AUTHORIZED
- Yellow: UNAUTHORIZED
- Red: ACCESS DENIED

One of the minified screens is always active (marked with its altered frame color). A screen can be activated by simply clicking on it.

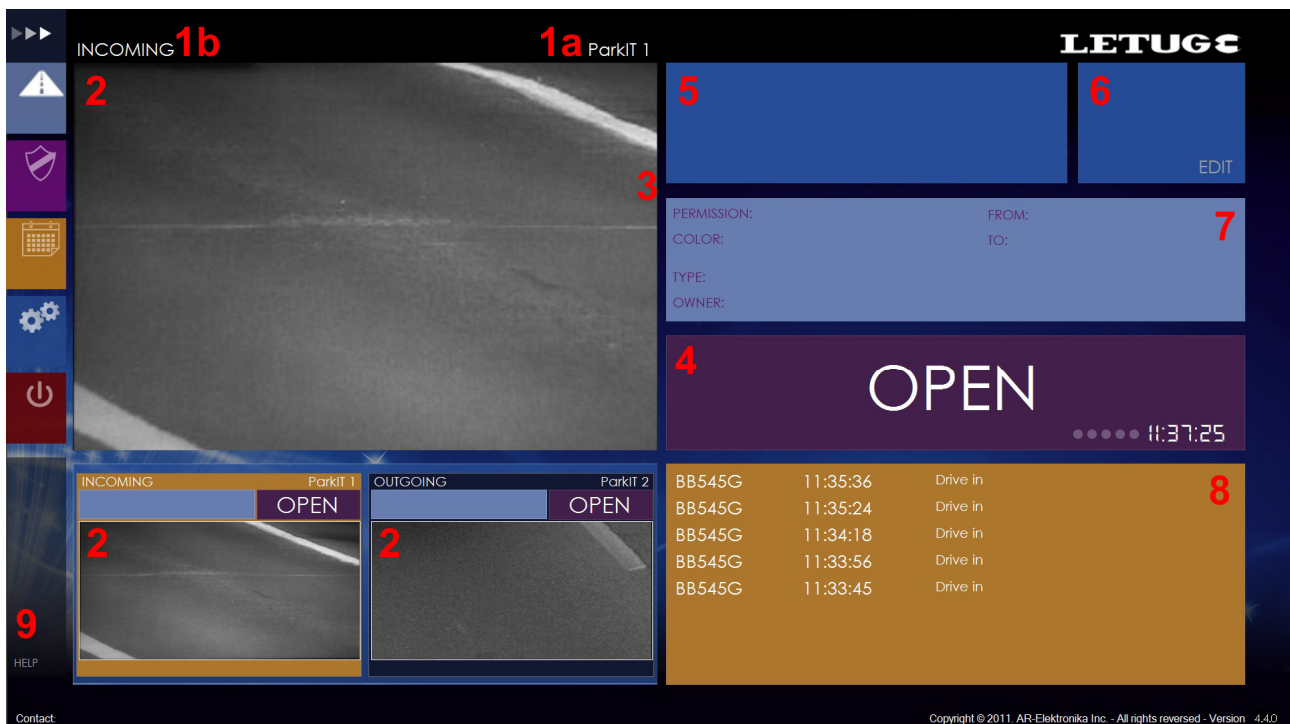
The following screen layouts can be seen depending on the number of the used cameras.

Four-camera layout:

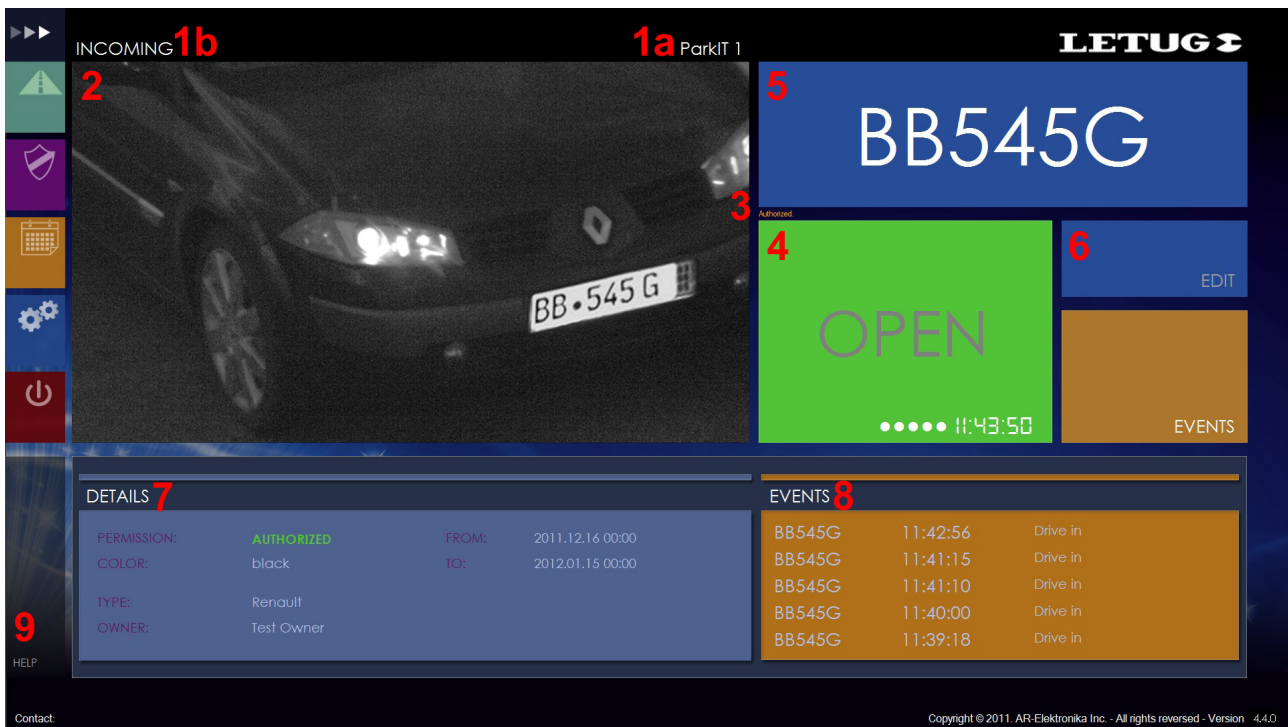


Two-camera layout:

The color of the [OPEN] button at the main- and the minified screens turns to purple in case of no motion.



One-camera layout:



- 1a. Name of the access point.
- 1b. Direction of the access point: INCOMING / OUTGOING / UNDEFINED.
2. Camera view: live image of the access point.
3. Status of entries and exits: text message of the access and exit processes. E.g. **“Waiting...”**, **“Getting images...”**, **“ANPR”**, **“Authorized”**, etc.
4. **Open** button: by clicking the Manual open button the program opens the bars or gates independently from the permissions, prohibitions or other processes. The program captures an image of the opening process by all means, whether there was a recognized number plate in it or not.
5. **Recognized plate**: the recognized and identified license plate can be seen in this field.
6. **Corrected plate**: in case of a false recognition (e.g.: muddy or snowy license plate) the plate number can be corrected manually by clicking the **[EDIT]** button and attached to the current event. After the correction the system checks the permission again. As a result of this correction the event can change to authorized (automatic) drive in or waiting for manual opening (no permission or blacklisted vehicle).

NOTE! License plate characters have to be entered without dashes and spaces! E.g. in case of ABC – 123 the ABC123 has to be entered.

NOTE! In case of misrecognized license plates – if they are not corrected by the operator – the list of cars within the parking facility and the parking time calculation will be incorrect!

Tip: the corrected license plate can be saved by the Enter key.



-
7. **Details:** in this part of the screen the permission, type, color, owner's name and the permission's expiration date of the successfully identified and authorized vehicle can be seen.
 8. **Events:** previous events of the access point are listed here (according to the vehicles' license plate, the exact date and the type of the event).

NOTE! In case of four camera usage, click the Details/Event button to switch between the Details and Event lists.

9. **Help:** Click this button or press **F1** to open the User's Manual.

4.1.1 Steps of the Entry Process

1. The system is waiting for an event. Status: „Waiting”
2. A vehicle arrives to the access point. The trigger status indicator turns to green.
3. The camera captures an image of a vehicle. Status: „Capturing images”
4. Applying license plate recognition. Status: „ANPR”.
5. If there is no permission according to the settings in **4.4.3 Cameras** section, OR the vehicle has a valid permission (**4.2 Permissions**) (AND it is not blacklisted), then the status of the drive through event will be **AUTHORIZED**, the **[OPEN]** button and the **[Lanes]** menu button will be **green** and the barrier will open automatically. Moreover, a “Drive in” event entry will be added to the list.

NOTE! Only the barrier opening is affected by the settings of the permission. The analysis of the permission is done regardless of this process. Green will be only vehicles with permission. The permission check of the camera controls only the barrier status: whether it opens for “Red” and “Yellow” vehicles or not.

The screenshot displays the LETUGO software interface. At the top left, there are navigation icons. The main area is divided into several sections:

- INCOMING ParkIT 1:** A large video feed showing a black car with license plate BB545G.
- Authorized Panel:** A blue panel displaying the license plate **BB545G** and an **EDIT** button. Below it, a table lists vehicle details:

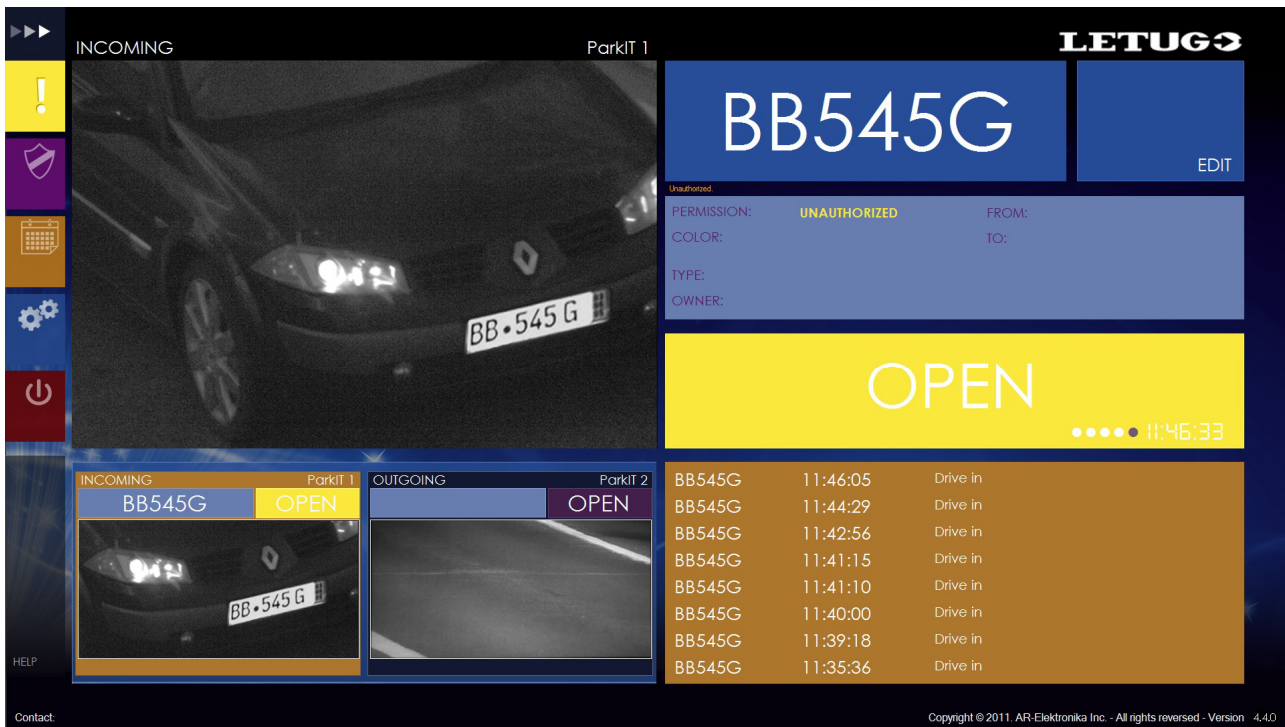
Authorized	
PERMISSION:	AUTHORIZED
COLOR:	black
TYPE:	Renault
OWNER:	Test Elek
FROM:	2011.12.16 00:00
TO:	2012.01.15 00:00
- OPEN Button:** A large green button with the text **OPEN** and a progress indicator (four dots, the last one filled) and a timer showing 11:45:50.
- Bottom Section:**
 - INCOMING ParkIT 1:** A smaller video feed of the same car.
 - OUTGOING ParkIT 2:** A video feed showing the car's rear.
 - Event Log:** A table listing recent drive-in events:

License Plate	Time	Action
BB545G	11:44:29	Drive in
BB545G	11:42:56	Drive in
BB545G	11:41:15	Drive in
BB545G	11:41:10	Drive in
BB545G	11:40:00	Drive in
BB545G	11:39:18	Drive in
BB545G	11:35:36	Drive in
BB545G	11:35:24	Drive in

At the bottom left, there is a **HELP** button. At the bottom right, the copyright notice reads: Copyright © 2011, AR-Elektronika Inc. - All rights reserved - Version 4.4.0

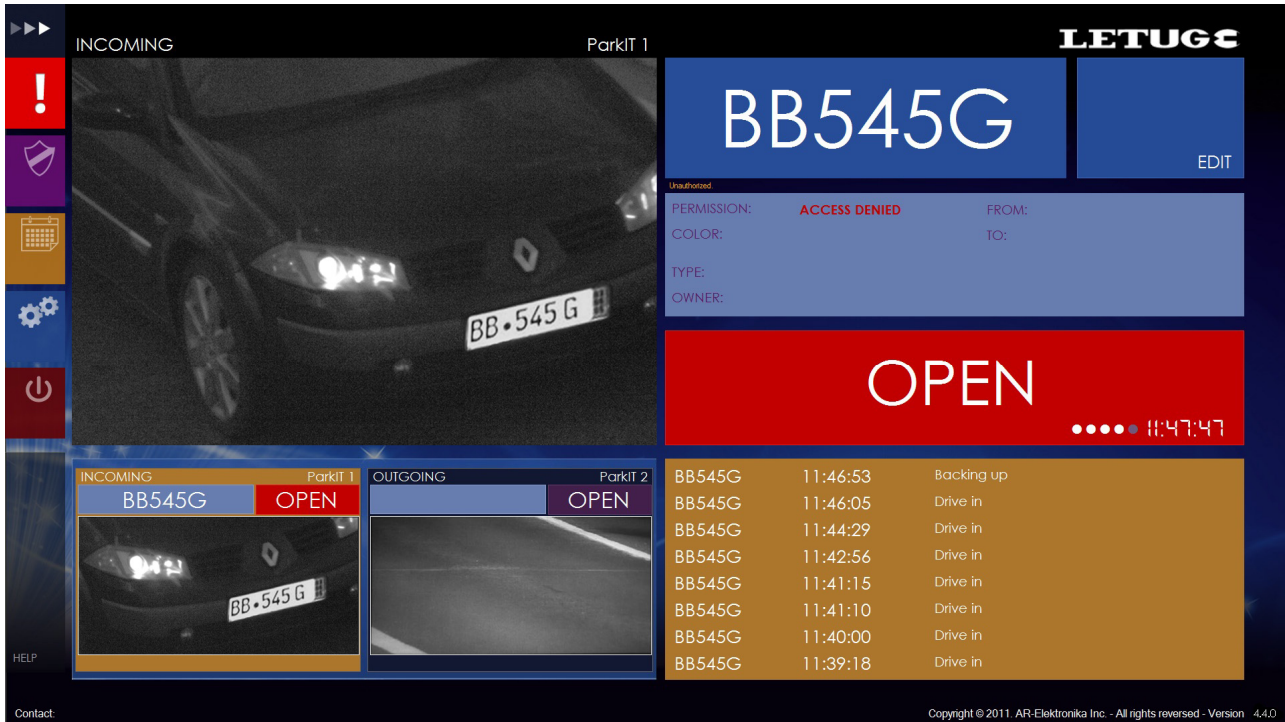
If the vehicle has no permission, then the event will be **UNAUTHORIZED**, the background of the [OPEN] button and the [Lanes] menu button turns to **yellow** and the system waits for an external intervention that can be:

- Manual opening: in this case, a "Manual drive in" event will be generated and the system considers the vehicle entering.
- Reversing from (loop signal stops): the event will be saved ("Backing up" type), but the system does not consider the vehicle entering.



6. Correction of the recognized license plate: if the corrected license plate is authorized (it is on the permissions list), the procedure in the 5th point is the next step.

7. If the license plate is blacklisted (4.4.2 Blacklist) then the event will be **ACCESS DENIED**, the [OPEN] button and the [Lanes] menu button turns to **red** and the system waits for an external intervention as at the 5th step. If the operator lets the vehicle in by the [OPEN] button, a "Blacklisted drive in" event entry will be added to the list.



8. The event is added to the event list and the system waits for a further event (1st step).

NOTE! The above process can be started by the user by clicking the [OPEN] button (in this case, the camera does not detect the event, but the user starts it regardless to the trigger of the camera). The above process will be done in this case as well except the following differences:

- license plate correction is not possible at driving in (of course it can be done in the result list afterwards)
- the barrier will open at all means, whether there was a license plate with permission in the captured image or not.

4.1.2 Manual Lead out with Plate Matching

A vehicle can be lead out in case of such OUTGOING events, when it can not be decided whether the outgoing, unauthorized vehicle is inside the parking facility or not (e.g. the operator has not corrected the misrecognized plate text on vehicle entry). Since the 'entry plate' is not available for the mentioned vehicle, the operator has to match the number plate manually, by choosing from the cars' within the facility in order to establish parking fee. This process is necessary to let the vehicle out and can be executed by clicking on the [PARKING CAR LIST] button. It is located at the details and opens the list of cars within facility.

The following screenshots are in pairs, depending on whether the PARKING CAR LIST is opened, or not:

One-camera layout:

OUTGOING ParkIT 1 LETUGO

BB545G

OPEN 11:50:38

EDIT EVENTS

DETAILS

PERMISSION: UNAUTHORIZED FROM: COLOR: TO: TYPE: PARKING FEE: OWNER: PARKING TIME:

PARKING CAR LIST

EVENTS

BB545G	11:48:46	Backing up
BB545G	11:46:53	Backing up
BB545G	11:46:05	Drive in
BB545G	11:44:29	Drive in
BB545G	11:42:56	Drive in

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OUTGOING ParkIT 1 LETUGO

BB545G

OPEN 11:51:38

EDIT EVENTS

DETAILS

PERMISSION: UNAUTHORIZED FROM: COLOR: TO: TYPE: PARKING FEE: OWNER: PARKING TIME:

PARKING CAR LIST

BB545G	2011.12.16. 11:46
ABC123	2011.12.16. 11:51
TST678	2011.12.16. 11:51

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Two-camera layout:

Two-camera layout screenshot showing ParkIT 1 and ParkIT 2 views, license plate BB545G, and a list of parking events.

OUTGOING ParkIT 1

BB545G

INCOMING ParkIT 2

BB545G

LETUGO

BB545G

EDIT

Unauthorized

PERMISSION: UNAUTHORIZED

COLOR:

TYPE:

OWNER:

FROM:

TO:

PARKING FEE:

PARKING TIME:

PARKING CAR LIST

OPEN

11:53:11

License Plate	Time	Action
ERH70A	11:52:06	Backing up
BB545G	11:48:46	Backing up
BB545G	11:46:53	Backing up
BB545G	11:46:05	Drive in
BB545G	11:44:29	Drive in
BB545G	11:42:56	Drive in
BB545G	11:41:15	Drive in
BB545G	11:41:10	Drive in

HELP

Contact:

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Two-camera layout screenshot showing ParkIT 1 and ParkIT 2 views, license plate BB545G, and a list of parking events.

OUTGOING ParkIT 1

BB545G

INCOMING ParkIT 2

BB545G

LETUGO

BB545G

EDIT

Unauthorized

PERMISSION: UNAUTHORIZED

COLOR:

TYPE:

OWNER:

FROM:

TO:

PARKING FEE:

PARKING TIME:

PARKING CAR LIST

OPEN

11:53:25

License Plate	Time	Action
ABC123	2011.12.16. 11:51	
TST678	2011.12.16. 11:51	

HELP

Contact:

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Four-camera layout:

OUTGOING ParkIT 1

LETUGO

BB545G

EDIT

Unauthorized

PERMISSION: UNAUTHORIZED FROM:

COLOR: TO:

TYPE: PARKING FEE:

OWNER: PARKING TIME:

PARKING CAR LIST

OPEN 11:54:40

EVENTS

HELP

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OUTGOING ParkIT 1

LETUGO

BB545G

EDIT

Unauthorized

ABC123 2011.12.16, 11:51

TST678 2011.12.16, 11:51

PARKING CAR LIST

OPEN 11:55:11

EVENTS

HELP

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4.2 Permissions

The entry and exit is granted for authorized vehicles only. Permissions are assigned to license plates (with exact matching). The system allows entry and exit of the successfully identified vehicles with valid permission automatically and also creates a log of entry/exit events.

By clicking on the **[Permissions]** button on the left side, the following screen will appear:

PLATE	OWNER	FROM	TO
GWE763	Test Owner	2011.12.16.	2012.01.15.

TOTAL: 1

Permissions can be seen in the appearing list.

Steps of filtering:

- select the field you want to filter (by checking the checkboxes before the Plate, Owner, From and To)
- enter the characters to filter for and/or set the time interval
- clicking on the **[SEARCH]** button, the list will be updated and displayed according to the newly entered filtering options

Filter criteria:

- Plate number: all characters of the license plate or any part of it can be entered. For example: if the user enters only the first two characters, the program will display all plate numbers that contain the entered characters.
- Owner: the full name or any part (characters) of it can be entered as in case of the previous filtering option.

- Starting and end date (From - To): by the drop-down calendar the issuing and the expiration date of the permission can be specified as filtering criteria. In this case the program will display all permissions that fall within the specified interval (e.g. owner AB has a one year permission from 01-Jan-2009 to 31-Dec-2009, owner MN has a permission from 15-Mar-2009 to 14-Apr-2009 and owner XY has a one day permission from 01-Dec-2009 to 02-Dec-2009. If the starting date is set to 01-Jan-2009, all three permissions will be displayed. If the end date is set to 30-Sep-09, only permissions of the AB and MN owners will be displayed. If both dates are set (from 01-Apr-2009 to 01-Dec-2009), all three permissions will be displayed because the specified interval is covering all three expiration dates).

The current list can be saved in .csv format with the **[EXPORT]** button and it can be inserted into a spreadsheet program for further processing. After clicking **[EXPORT]**, both events of a specified period and all events can be exported.

NOTE! The header and the records are exported into separate files in this way providing flexible processing possibilities for users. Note, that event lists containing more than 2500 records are exported in more data files (max. 2500 lines/file).

Tip: it can be arranged into ascending/descending order by clicking on the headlines of the column (permissions are listed in alphabetical order according to the number plate by default).

4.2.1 New Permission

New permissions can be added by clicking the **[NEW]** button in the **Permissions** menu.

- **Plate:** Filling the number plate text field is necessary; filling any other field is optional.
NOTE! Checking of the permission is based solely on the license plate! No other data has any effect on establishment of the permissions!
- Permissions are valid for a month from the issuing date by default.
- **Cameras:** The camera (access point), on which the permission is valid. Check the checkbox to select the camera.
- Data referring to the color, type and owner of the vehicle are ignored during the identification. In case of successful license plate based identification the above information appear in the **Lanes** menu.
- **Contact info** and **Note** fields: text information that is displayed in the **Lanes** interface for the user as well. They also have no effect on the recognition process or the establishment of the permission!

To apply these settings click the **[OK]** button; click **[CANCEL]** to discard all changes.

Data of an already existing permission can be modified by the **[MODIFY]** button. Modification can be confirmed by the **[OK]** button; click **[CANCEL]** to discard all changes.

*Tip: the modifier window can be opened by double-clicking on it in the list instead of the **[MODIFY]** button.*

The selected permission can be deleted from the list by clicking **[DELETE]** button.

NOTE! All the existing permissions will be applied to the newly added camera!

4.3 Reports

The system registers and stores every event. The list of these events can be viewed in the reports menu and can be used for various user purposes (e.g. determining if a car is within the facility).

By clicking [**Events**] button on the left side of the window the following screen will appear:

The screenshot shows the 'EVENTS' report screen in the LETUGO software. The interface is divided into several sections:

- Filters:**
 - PLATE:** A text input field.
 - FROM:** A date and time selector set to 2011.12.16. 00:00.
 - TO:** A date and time selector set to 2011.12.17. 00:00.
 - CAMERAS:** A list of cameras with checkboxes: ParkIT 1, ParkIT 2, ParkIT 3, and ParkIT 4. A 'SHOW DELETED CAMERAS' checkbox is also present.
 - EVENTS:** A list of event types with checkboxes: Unauthorized, Backing up, Manual open, Drive through, and Drive in.
- Table:** A table with the following columns: DATE, CAMERA, EVENT TYPE, FRONT PLATE, RECOGNIZED, OWNER, and NOTE. The table is currently empty.
- Summary:** A 'TOTAL:' label followed by the number '0'.
- Buttons:** A 'SEARCH' button in the top right and an 'EXPORT' button in the bottom right.
- Footer:** 'Contact:' on the left and 'Copyright © 2011 AR-Elektronika Inc. - All rights reserved - Version 4.4.0' on the right.

4.3.1 Events

By clicking the **Event** tab, the entry/exit events of the last 24 hours can be seen in the appearing list by default. These events can be filtered for cameras checked in the **Cameras** tab, moreover, if the SHOW DELETED CAMERAS checkbox is checked, events of former, already deleted cameras can be listed.

Steps of filtering:

- select the field you want to filter (by checking the checkboxes)
- enter the characters to filter for and/or set the time interval
- click on the [**SEARCH**] button the list will be updated and displayed according to the newly entered filtering options

Filtering criteria:

- **Plate:** all characters of the license plate or any part if it can be entered. For example: the user enters the first two characters and the program will display all plate numbers that contain the entered characters.
- **Cameras:** events can be filtered by cameras.
- **Events:** the type of the event can be specified. It can be:
 - unauthorized (vehicles have no permission to drive through)
 - manual drive in (allowing a vehicle in manually)
 - manual drive out (allowing a vehicle out manually)
 - manual open (all events of manual opening)
 - limited (vehicles with limited access)
 - drive through
 - drive in
 - drive out
 - blacklisted drive in (vehicle driving in is on the blacklist)
 - blacklisted drive out (vehicle driving out is on the blacklist)
 - blacklisted (all vehicles on the blacklist)
- **Starting and end date:** the starting and end date of the event list refers to the events that fall within this interval.

NOTE! Highlighted (red) vehicles in the list are blacklisted!

The current list can be saved in .csv format by the **[EXPORT]** button and it can be inserted into a spreadsheet program for further processing.

Tip: records can be arranged into ascending/descending order by clicking on the headlines of the columns (Default: ascending order by date).

4.3.2 Parking

The following screen will appear after clicking the **Parking** tab:

The screenshot shows the LETUGO Parking management interface. The main content area is titled 'PARKING' and contains a search form and a table of parking events.

Search Form:

- PLATE:** [Text input field]
- FROM:** [Date/Time selector: 2011.12.16. 00:00]
- TO:** [Date/Time selector: 2011.12.17. 00:00]
- STATUS:** [Dropdown menu: IN]

Table of Parking Events:

PLATENUMBER	ARRIVE	DEPARTURE	TIME SPENT IN	PARKING FEE
TST678	2011.12.16. 11:51			
ABC123	2011.12.16. 11:51			

TOTAL: 2

Right Sidebar Buttons: SEARCH, NEW, LEAD OUT, EXPORT

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The following data of the arrived vehicles can be seen in the list:

- **Plate number,**
- **Arrival,**
- **Departure,**
- **Time spent in** and the calculated **Parking fee.**

The **Time spent in** and the **Parking fee** can be calculated only if both the **Arrival** and the **Departure** has been registered. If there is no data in the **Departure** column, the vehicle is considered to be within the parking facility.

NOTE! If in case of a Drive out event, the recognition of the number plate was incorrect and the vehicle was allowed out manually (without plate correction), then the database may be incorrect!

Steps of filtering:

1. select the field you want to filter (by checking the checkboxes)
2. enter the characters to filter for and/or select status and/or set the time interval (Default: **From** and **To** is selected)
3. clicking on the **[SEARCH]** button the list will be updated and displayed according to the newly entered filtering options

Status: the status of the vehicles can be specified in this field.

- in (vehicle is in the access controlled area)
- out (vehicle is outside the access controlled area)
- undefined (the status of the vehicle cannot be defined)

The current list can be saved in .csv format by the **[EXPORT]** button and it can be inserted into a spreadsheet program for later processing.

The screenshot shows the LETUGO software interface. On the left is a sidebar with icons for navigation. The main area is titled 'PARKING' and contains a table with columns: PLATENUMBER, ARRIVE, DEPARTURE, TIME SPENT IN, and PARKING FEE. The table lists two vehicles: TST678 and ABC123, both arriving on 2011.12.16 at 11:51. A pop-up window is open for editing the vehicle TST678, showing fields for NUMBERPLATE, ARRIVE, and LEAVE, with buttons for SAVE and CANCEL. On the right side of the interface, there are buttons for SEARCH, NEW, LEAD OUT, and EXPORT. At the bottom right, a 'TOTAL:' label shows the value '2'.

PLATENUMBER	ARRIVE	DEPARTURE	TIME SPENT IN	PARKING FEE
TST678	2011.12.16. 11:51			
ABC123	2011.12.16. 11:51			

Pop-up window details:

NUMBERPLATE: TST678

ARRIVE: 2011.12.16. 11:51

LEAVE: 2011.12.16. 11:57

Buttons: SAVE, CANCEL

TOTAL: 2

By the **[LEAD OUT]** button in the lower right corner, a vehicle – that is within the controlled area according to the list – can be driven out. In this case the date of the departure should be entered. The specified date can be validated by the **[SAVE]** button. As a result, this will generate a **Drive out** event, imitating a passing vehicle through the checkpoint. This pop-up window can be seen above.



LETUGO

EVENTS PARKING

PLATE: FROM: 2011.12.16. 00:00

STATUS: IN TO: 2011.12.17. 00:00

PLATENUMBER	ARRIVE	DEPARTURE	TIME SPENT IN	PARKING FEE
TST678	2011.12.16. 11:51			
ABC123	2011.12.16. 11:51			

NUMBERPLATE:

ARRIVE: 2011.12.16. 11:57

LEAVE: 2011.12.16. 11:57

SAVE CANCEL

TOTAL: 2

SEARCH

NEW

LEAD OUT

EXPORT

HELP

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It is possible to add a new vehicle entering its plate number and the arrival date by the [NEW] button in the right lower corner of the screen. The entered data can be validated by clicking the [SAVE] button. This will generate a **Drive in** event, as if a vehicle arrived through an access point.

4.4 Settings

At the **Settings** menu item the system's operating parameters can be customized.

The following screen will appear by clicking the **Settings** button:

The screenshot displays the LETUGO Settings interface. On the left is a vertical sidebar with icons for navigation. The main area features a tabbed menu with 'USERS' selected. Below the tabs is a table with three columns: NAME, LOGIN, and RIGHT. The table contains three entries: 'Adminisztrátor' (highlighted in red), 'Test User 1', and 'Test User 2'. To the right of the table are three buttons: 'NEW', 'MODIFY', and 'DELETE'. The bottom of the screen shows a 'Contact:' label on the left and a copyright notice on the right.

NAME	LOGIN	RIGHT
Adminisztrátor	admin	ADMINISTRATOR
Test User 1	testuser1	USER
Test User 2	testuser2	USER

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4.4.1 Users

On the first tab the list of the **Users** (operators) can be seen grouped by their name, login and rights.

New user can be added by clicking the **[NEW]** button.

NAME	LOGIN	RIGHT
Adminisztrátor	admin	ADMINISTRATOR
Test User 1	testuser1	USER
Test User 2	testuser2	USER

NAME: NEW PASSWORD:

LOGIN: CONFIRM NEW PASSWORD:

ROLE:

OK CANCEL

- Filling the **Name**, **Login** and **New password** fields is necessary; filling any other field is optional.
- Rights of the user can be selected from the drop-down menu. It can be **administrator** or **user** (the user has limited access).
- It is important to protect the login with a secure password. After filling password field the **Confirm new password** field has to be filled as well.

To confirm the changes click **[OK]**; click **[CANCEL]** to discard all changes.

Data of an already existing user can be modified by the **[MODIFY]** button. Modification can be confirmed by the **[OK]** button; click **[CANCEL]** to discard all changes.

The selected user can be deleted by the **[DELETE]** button (to modify or to delete the selection, first click on it).

4.4.2 Blacklist

The blacklist is on the second tab (list of vehicles that are not allowed to enter for some reason), grouped by the plate number, name of the owner, color and type of the vehicle, date and reason of the prohibition.

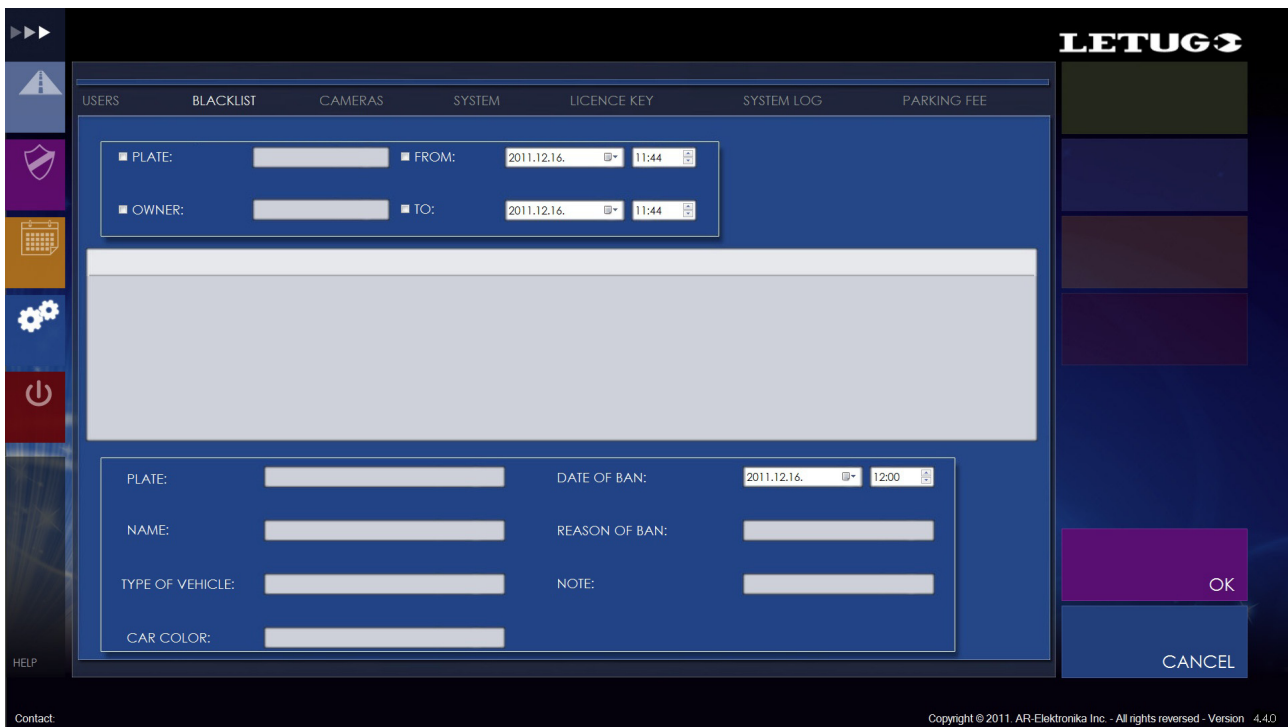
The blacklisted vehicles are highlighted (red) in the **Lanes** menu item after the automatic number plate recognition and are not allowed to drive in (these vehicles can be allowed to drive in by manual opening).

The screenshot shows the LETUGO software interface. The top menu bar includes tabs: USERS, BLACKLIST, CAMERAS, SYSTEM, LICENCE KEY, SYSTEM LOG, and PARKING FEE. The BLACKLIST tab is active. Below the tabs, there are search filters for PLATE, OWNER, FROM, and TO. The main area displays a table of blacklisted vehicles. The table has columns: PLATE, NAME, CAR COLOR, CAR TYPE, BAN DATE, BAN REASON, and NOTE. One vehicle is listed: GWE763, Test Owner, white, BMW, 2011.12.16. 11:59. The right sidebar contains buttons: SEARCH, NEW, MODIFY, DELETE, IMPORT, and EXPORT. The bottom of the interface shows a contact information field and a copyright notice: Copyright © 2011 AR-Elektronika Inc. - All rights reserved - Version 4.4.0.

PLATE	NAME	CAR COLOR	CAR TYPE	BAN DATE	BAN REASON	NOTE
GWE763	Test Owner	white	BMW	2011.12.16. 11:59		

All blacklisted vehicles are listed here by default. The list can be filtered by the checkboxes before the text fields; then clicking on the **[SEARCH]** button the list will be updated and displayed according to the newly entered filtering criteria.

New blacklisted vehicle can be added by clicking on the **[NEW]** button.



- Filling the Number plate field is necessary; filling any other field is optional.
- Except the Plate field no other field affects the ban. They can only provide information for the gate-keeper.

Newly added items are confirmed by clicking **[OK]** button; click **[CANCEL]** to discard all changes.

Click on the **[MODIFY]** button to modify data of an already existing blacklisted vehicle. All fields can be modified. Modification can be confirmed by the **[OK]** button; click **[CANCEL]** to discard all changes.

The selected vehicle can be deleted by the **[DELETE]** button (to modify or to delete the selection, first click on it).

4.4.3 Cameras

The camera, used by the system can be seen on the **Cameras** tab. The system handles the connected camera as a checkpoint. The system operator should ensure that the camera

- has obvious name for the gatekeeper
- has correct direction (Incoming/Outgoing)
- has to be set appropriately (available, it operates well, sharp, clear live image, etc.)

If the goal is an automatic, permission-based entry control, then the **Permission check** and the **Blacklist check** have to be checked.

NAME	DIRECTION	IP	CAMERA TYPE	PERMISSION CHECK	BLACKLIST CHECK
ParkIT 1	Outgoing	192.0.2.11	PARKIT	☒	☒
ParkIT 2	Incoming	192.0.2.12	PARKIT	☒	☒
ParkIT 3	Outgoing	192.0.2.13	PARKIT	☒	☒
ParkIT 4	Incoming	192.0.2.3	PARKIT	☒	☒

NOTE! The number of the added cameras depends on the purchased license. If the limit is reached, the [NEW] button can not be seen. Otherwise a new camera can be added by the [NEW] button.

The screenshot shows the LETUGO software interface. At the top, there are tabs: USERS, BLACKLIST, CAMERAS, SYSTEM, LICENCE KEY, SYSTEM LOG, and PARKING FEE. The 'CAMERAS' tab is active, displaying a table with the following data:

NAME	DIRECTION	IP	CAMERA TYPE	PERMISSION CHECK	BLACKLIST CHECK
ParkIT 1	Outgoing	192.0.2.11	PARKIT	☒	☒
ParkIT 2	Incoming	192.0.2.12	PARKIT	☒	☒
ParkIT 3	Outgoing	192.0.2.13	PARKIT	☒	☒

Below the table is a configuration form with the following fields:

- NAME:
- LOGIN:
- CAMERA TYPE:
- PASSWORD:
- DIRECTION: ☐ INCOMING ☒ OUTGOING ☐ UNDEFINED
- ADDRESS:
- PORT:
- TIME OF OPENING (MS):
- CHECK: ☒ PERMISSIONS ☒ BLACKLIST

At the bottom right of the form is a 'CANCEL' button. The interface also includes a sidebar with icons for navigation and a footer with 'Contact' and 'Copyright © 2011. AR-Elektronika Inc. - All rights reserved - Version 4.4.0'.

- Filling the **Name** (any unique name) and the **Address** (IP address) fields is necessary; filling any other field is optional.
- **Login** and **password** can be assigned to the camera if required.
- Clicking on the **Camera Type** field a drop-down menu will appear, from which the type of the connected camera (supported by the LetUgo application) can be selected.
- The **Direction** can be selected by the help of the radio buttons, according to the observed checkpoint (**Incoming** or **Outgoing**). If the direction is **Undefined** it will not be possible to define whether the vehicle is within the parking zone or not.
- **Port**: port of the computer to which the LetUgo sends the images. It is selected by the LetUgo and can not be altered by users. Ports are sorted out in the following order: 8080, 8081, 8082 and 8083.
- The **Time of opening** refers to the period of time during which the barrier (gate) is in opened position (in milliseconds).
- The camera can take into account/ignore the **Permissions** and/or the **Blacklist**. Use the checkboxes near the **Check** option to turn them on. If it is not checked, the system lets all vehicles in regardless to the permission and the recognition.

Confirmation can be done by the [OK] button; click [CANCEL] to discard all changes.

Data of an existing camera can be modified by the [MODIFY] button. Modification can be confirmed by the [OK] button; click [CANCEL] to discard all changes.

The selected camera can be deleted by the [DELETE] button (to modify or to delete the selection, first click on it).

4.4.4 System

Parameters of the system can be seen on the fourth tab.

- **Path of sound files:** path of the alarm signal sounding on entry attempts of vehicles.
- **Image path:** path of the camera images on the hard disk. It is possible to browse a previously set path with the help of the button after the field or by entering the path that will be created by the program on the hard disk at the first image capturing.
- **GUI language:** the language of the application interface can be set by the drop-down menu.
- **Delete older than...days:** the system can be set to delete events older than a specified number of days. Set **0** to not clear at all.

NOTE! This field is set to 180 by default. If it is important to keep all previous events, before using the LetUgo software change this value!

Modification can be confirmed by the [**SAVE**] button. Factory settings can be reset by the [**RESTORE**] button.

4.4.5 License key

The license key can be entered on the **License key** tab. It can be stored by the **[STORE]** button. Data on the screen is related to the validity of the license (e.g.: expiration date).

LETUGO

USERS BLACKLIST CAMERAS SYSTEM **LICENCE KEY** SYSTEM LOG PARKING FEE

LICENCE KEY: [] [] [] [] [] [] []

LICENCE NUMBER:	500
VALID FROM:	2012-03-08
VALID TO:	2012-09-08
APPLICATION ID:	20
EXTRA DATA:	31 30 36 34
HARDWARE KEY STATE:	HARDWARE KEY OK.

STORE

HELP

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4.4.6 System log

Log entries of the events and user operations are logged by the application and can be viewed by clicking the **System log** tab. The list of the log entries can be filtered according to the entry type by the checkboxes above the list.

LEVEL	TIME	MESSAGE
INFO	2011.11.03. 16:29:38	Vehicle arrived.
INFO	2011.11.03. 16:29:35	Recognize...SUCCESS
INFO	2011.11.03. 16:29:35	Unauthorized.
INFO	2011.11.03. 16:29:29	Trigger arrived.
INFO	2011.11.03. 16:29:29	Vehicle arrived.
INFO	2011.11.03. 16:29:29	Capturing images...
INFO	2011.11.03. 16:29:29	Capturing images...
INFO	2011.11.03. 16:29:29	ANPR...
INFO	2011.11.03. 16:29:26	Camera: 192.0.2.3 - Set camera defaults for 192.0.2.3. Reset trigger/eventman...
INFO	2011.11.03. 16:29:24	Camera: 192.0.2.3 - ParkIT camera trigger listener thread listening on 192.0.2....
INFO	2011.11.03. 16:29:24	Camera: 192.0.2.3 - Live feed thread started.
INFO	2011.11.03. 16:29:15	Camera: 192.0.2.3 - Live feed thread stopped.
INFO	2011.11.03. 16:29:15	Camera: 192.0.2.3 - ParkIT trigger listener thread stopped.
INFO	2011.11.03. 16:29:01	User "admin" logged in successfully.
INFO	2011.11.03. 16:28:58	Camera: 192.0.2.3 - ParkIT camera trigger listener thread listening on 192.0.2....
INFO	2011.11.03. 16:28:58	Camera: 192.0.2.3 - Live feed thread started.

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4.4.7 Parking Fee

Settings related to parking can be specified on the **Parking** tab.

In case of unauthorized vehicles the parking data provides supporting information at the moment of the leaving to the desk clerk for parking fee calculation purposes.

In the **Free parking time (min)** field it can be set how much time may vehicles spend in the parking lot free of charge. Only vehicles exceeding this time limit obliged to pay parking fee.

The program supports the use of time units for measuring parking time. The length of this time unit can be set in the **Parking Period (min)** field.

After every started **Parking Period (min)** the **Cost of period** is added to the final parking fee.

The currency of the parking fee can be set in the **Currency** field (text data).

If the **Include free parking time** option is enabled, then the period of free parking is also included in the final parking fee.

For example: The parking fee is 200 HUF / hour, but the first two hours are free of charge. Those who stay more than 2 hours in the parking zone, they have to pay only for the period over the 2 hours! In this case:

- ▶ Free parking time (min): 120
- ▶ Parking period: 60
- ▶ Cost of period: 200
- ▶ Currency: HUF
- ▶ Include free parking time: no (the checkbox is empty)

4.5 Exit

By clicking on the **[EXIT]** button on the left side, the following window appears for logging off or quitting the program.

NOTE! While a user is logged off (by clicking **LOG OFF** or pressing **F10**), LetUgo is still running in the background. The user can return to LetUgo by Logging in again.

