User manual for PBresults application
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1. Overall information. Functions of the application
The application PBresults – a convenient user interface of paintball game management and organization through your tablet device. The application allows the user to carry out basic functions and display all necessary information for organization of paintball games. For full functionality of the application PBresults hardware is necessary.

Main functions of the application:

- Mobility, ability to access the necessary information at any given point on the field within hardware signal range;
- Settings and display of the game;
- Voice announcement throughout the game;
- Editing of the results;
- Games can be held in single (two teams) or double (four teams) mode;
- Tournament import and team building from website;
- Archive of the results;
- Quick connection of the app to the hardware;
- Game result export in PDF documents;
- Online live display of the tournament results to any devices that are equipped with web browser (smart TV, tablets, mobile phones, PC) of current game;

1.1. Technical requirements
Application requires a tablet device running on an Android operating system 4.0 or higher.

2. Installation of the application and connection to hardware.
To install the application first you need to download it from the app store Google Play Market. Go to the search bar and type “PBresults”, then press install.

Figure 2.1 - PBresults app logo

2.1. Beginning of the work. Bluetooth Receiver connection to tablet
Bluetooth Receiver is tuned to work in 868 MHz and is necessary for collecting data from hardware and transmitting it to the app on the tablet through Bluetooth (see fig. 2.2.).

To connect receiver to the tablet, follow these steps:

- On the right side of the receiver change position of the button to ON;
- Bluetooth signal indicator light will start blinking;
- Turn on Bluetooth on the tablet;

![Figure 2 - Receiver](image)

- On the tablet check the list of available devices for connection. The name of the receiver will consist of word PBresults- and serial number that can be found on the side of the receiver (see fig. 2.3.)

![Figure 2.3 - Name of the receiver in the list of available devices](image)

- Tap on the name of the receiver;
- Input receiver serial number in the field of PIN, serial number can be found on the body of receiver, tap OK (see fig. 2.4);
- Receiver will appear on connected devices (see fig. 2.5.); 

- Blue Bluetooth indicator light will indicate, light up and indicate successful connection to the tablet;
- If hardware device buttons are pressed (Pit zone, Base button, Remote control) RF ALARM will light up on the receiver (hardware devices must be connected to the app, see chapter 2.2.)

2.2. **Hardware settings – connecting hardware to the application**

Before the start of connecting hardware devices make sure that the receiver is on and connected to the tablet. Open up the menu and go to the “Hardware settings”, select “Connect to device” (see fig. 2.6.)
A window will open up, there select “Pick a device” and choose receiver device (see fig. 2.7)

To connect all the rest of the devices, first select the name of the device in the app, then press the button on the selected device. For example, in the app select the device “Base A”, then press on one of the Base button. Serial number of the Base button should match the displayed serial number in the app in the field Base A.

Each device has its serial number on one side of it, after successful connection of all devices to the application the serial number of a device will be displayed next to the name of the device (see fig. 2.8). At the next connection of the application to receiver all devices connected before will be added automatically.
Battery status – press the button to check remaining battery charge of the receiver. If the receiver is out of charge connect the USB cable to charger or PC. Orange Charging indicator will light up on the receiver.

Scoreboard- if dedicated scoreboard is being used, make sure it is connected to a power outlet, then press on the Scoreboards in the application. Then press the button on the board to establish a connection with the application. The button is placed on the side near the power cord. After the button is pressed an indication will light up, “Link OK” in case of successful connection and “Link Error” in case of unsuccessful connection.

Right after turning on the scoreboard its serial number will be displayed for 3 seconds, then display will go dark until a new game is created.

3. Settings
Under section “Settings” there are two subsections. First - for selecting voice for announcements, second - for game settings (see fig. 3.1).
3.1. Sound
To choose announcement voice in the application (for example: 10 second countdown till the end of time, Base, Approve, No points, 30 seconds, 10 seconds, Game on, Game finish) select menu subsection “Sound” under section “Settings” (see fig. 3.2). Then choose female or male voice. Tap “Cancel” to cancel voice choice.

![Figure 3.2 - Choice of voice for announcements](image)

3.2. Game settings
Select section “Game settings”. If no game settings have been added the list will be empty (see fig. 3.3). In the opened window select “Add” to add new game setting. At the beginning of the new game one of previously created settings will be available for selection.

![Figure 3.3 - Empty list of game settings](image)

Window with game settings consists of following sections (see fig. 3.4):

- Name – the name of the setting;
- Game time (in min) – time of the main game in minutes;
- PreGame break (in sec) – time in seconds until the start of the main time;
- Break time (in sec) – time of the break in seconds between;
- Min. point break time (in sec) – time in seconds until the change of the team pairs on the field playing double game with 4 teams;
- Timeout count, time (in sec) – the amount of possible breaks available for the team and time of the break in seconds;
- Score to win – amount of points necessary for victory;
- Max difference – maximum difference (lead) of points between teams necessary for victory;
- Switch side (every points) – amount of points after which teams change game field sides.
- **Overtime (in sec)** – turn ON or OFF additional time for the game, that starts right after main game time ends if there is a draw. If this option is selected by a tick in the box amount of overtime in seconds must be put in;

- **One-on-One overtime (in sec)** – if overtime game also ends with a draw then additional time will start till one team takes a point;

- **Penalty Box (in sec). Minor, Major, Gross** – elimination of a player from the field for a foul. Three possible penalty times are available;

- **Auto approve (in sec.)** – time in seconds until the gained point will be approved for the team, which gained it. The referee doesn’t have to press Approve button to add the point to the team (field is not mandatory);

- **Repeat games (time)** – the amount of repetition of the game (field is not mandatory). This option can be used to tryout the game or for short games. The game will be repeated with the same game settings and team names. Right after the end of the game, the new game will appear with same settings. All repeated games will be available in the game history.

<table>
<thead>
<tr>
<th>Games</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
</tr>
<tr>
<td>Game time</td>
</tr>
<tr>
<td>Break time (in sec)</td>
</tr>
<tr>
<td>Min. point break time (in sec)</td>
</tr>
<tr>
<td>Timeout</td>
</tr>
<tr>
<td>Score to win</td>
</tr>
<tr>
<td>Switch side (every points)</td>
</tr>
<tr>
<td>Overtime (in sec)</td>
</tr>
<tr>
<td>One-on-One overtime (in sec)</td>
</tr>
<tr>
<td>Penalty Box (in sec)</td>
</tr>
<tr>
<td>Repeat games (times)</td>
</tr>
</tbody>
</table>

**Figure 3.4 - Game settings**

To change or delete game settings open the list of settings in the menu “Game settings” (see fig. 3.5).
To modify game settings, tap on the name of the settings you want to modify. To delete the setting tap on the cross, new window will open for confirmation, tap “OK” if you want to permanently delete it (see fig. 3.6).

4. Game screen – start the game
To start a new game, go to menu “Game screen”. New window will open “Game parameters” for setting the game parameters (see fig. 4.1).
In mentioned window following choices are available:

- Single or Dual game mode (see fig. 4.2);
- Setting name of the team, 8 or less characters;
- Use one of the preset game settings or create new by selecting “Create new” option from the list;
- Choose game - import tournament games from website pbresultsonline.com;
- Save - add and save next game;
- Start game.

After setting all the parameters tap “Start game” to begin game.

4.1. Single game

After choosing Single Game in “Game parameters” and tapping “Start Game” a setting panel will open for game management for two teams (see fig. 4.3). To start the game tap “Start”.
Figure 4.3 - Game management for two teams

- Remaining game time is shown above text “Game time”, time left to main game time and break length is under “Game time” text. By tapping on the time additional window will open (see fig. 4.4). In this window time can be changed.

Figure 4.4 - Changing time

- Next to the main game time an END button is situated. It can be pressed if the main game time has almost run out and there is no reason to wait for the time to run out. After the END button is pressed the game will end. If the game is a draw and overtime was set in game settings, overtime will start. The button END will become active if 10 seconds are left till the end of the game time and one of the following conditions are met:
  - the Stop button is pressed;
  - less than 10 seconds left till the end of Break time;
  - one of the teams gained a point.
• On the right and left team information: name and amount of points are displayed. Under the score of the team amount of penalties is displayed – Penalties (see fig. 4.5). If the team used Timeout the text “Timeout available” changes to “Timeout taken”.

![Figure 4.5 - Team information](image)

• Team sides on the field are changed automatically after preset amount of points is reached. After that in the application notification text is shown “Sides Switched” (see fig. 4.6). Field sides can be changed manually at any time of the game by tapping “Switch side”.

  Take into account that if team 1 is represented by button “Base A” then after switching field sides same team will be represented by button “Base B”. All the other buttons are not influenced by field side change.

![Figure 4.6 - Sides Switched](image)

• Buttons “Base” and “Towel Timeout” are located under each team information window (see fig. 4.7). These buttons can be used through Base button or by applying id card to button in Pit.
zone, as well as operator of this application. After pressing the button team score window will start to blink.

Towel Timeout – the team surrenders and a point is given to the opponent.

Base – team has taken over opposing team’s base.

Figure 4.7 - Base and Towel Timeout buttons

- Buttons for score are located under the dial in the center (see Figure 4.8). After pressing the “Base” button referee has to select one of the buttons: approve the score (Approve), not approve (No points) or give the score to the other team (Reverse Point). After pressing “Towel Timeout” the referee has to approve the score (Approve) or proceed with the game by selecting “Start”.

Figure 4.8 - Score approval buttons: Approve, No points, Reverse Point

- On the both sides of the score approval buttons are located player removal buttons with various penalty levels: Minor (1-1 One for one), Major (1-2 one for two) and Gross (1-3 one for three). Buttons on the left represents team on the left and buttons on the right side of the score approval buttons represents team on the right (see Figure 4.9). Team removals are displayed under section Penalties. Time of each removal penalty can be set in game settings, by pressing plus or minus next to penalty time increasing or decreasing the penalty time (see Figure 4.5).
- At any point in game time can be stopped by pressing “Stop” and started again by pressing “Start”.
- In the lower part of the application IP-address (and port name) of the tablet is displayed, it is necessary for displaying the score on the scoreboard (see Section 8.).
- To look at detailed game information tap on “History” in the right upper corner. A window will open, there overlook and acceptance of the game results can be signed, as well as export data into PDF file.

4.2. Dual game

By choosing “Dual Game” in the “Game Parameters” (see Figure 4.2) and tapping “OK” four team game management window will open, two teams in each group (see Figure 4.10).

In the center of upper part names of first two teams are displayed, on the right side of upper part second team pair is displayed. To open second pair of teams, swipe left to right, to go back to the first pair swipe right to left. Switching between team pairs can be also achieved by tapping “Switch” in the upper right corner of the screen. To start the game of the first pair tap on “Start”.

![Game interface screenshot](image)
Game management is same as described in Section 4.1. When one team of the first pair will press “Base” button countdown of break time will start (Min. point break time in the game settings) for the second group, after break time has elapsed second pair of teams go on the field. The application automatically will switch to second pair to activate the second pair. Inactive buttons are displayed grey, inactive buttons can’t be tapped (see Figure 4.11).

![Game management screen](image)

**Figure 4.11 - Grey buttons for inactive pair of teams**

### 4.3. Edit teams

To edit the teams names select “Edit teams” in the upper right corner. Team names can be edited even during the game time as well as before the game has started. To change team names write in the desired change and tap “OK” (see Figure 4.112). After tapping “OK” all changes will be updated in current game.

![Edit teams screen](image)

**Figure 4.12 – Change teams name**
4.4. History – Management of game points

Detailed history of the current game can be accessed by pressing “History” in the upper right corner of the settings page (see fig. 4.3). Gained points can be changed in the opened window for each team and the game can be started from the played round (see fig. 4.13).

![Game history]

To add or detract a point to a team press on the flag. Flag of dark color represents gained point, white flag – no point.

If the round or game has stopped by mistake, and it is necessary to replay the previous round of some other round, press on the index number of the round (see fig. 4.14, number indicated with the orange frame). An informative message will appear stating that current results of the game will be lost, press OK to start the game from selected round. The game will start with the same results and main game time as was set in selected round.
5. Application and website synchronization

Synchronization of the tournament data between website www.pbresultsonline.com and the application simplifies paintball game managing and publication of results. Previously created teams and games on website can be imported into application, and tournament results can be imported from the application to the website.

First, user must log in to website and create a tournament, consult the website user manual how to achieve that. User manual is available for download at pbresultsonline.com under section “Support”.

5.1. Choose game – game import from website

After tournament is created go to the section “My tournaments”, to get there click on username in the upper right corner of the website and select “Events organizing” section. Table of all created tournaments will open, find the tournament that will be imported, under column Code the tournament code will be displayed (see Figure 5.1), it is needed to import the tournament into application.
In the game parameter window click on “Choose game” (see Figure 4.1). Then type in tournament code in the “Tournament code” field and press refresh icon , shortly after a table will be automatically filled in with game schedule. Following data is imported: date and time of game, team names, and the names of fields for games (see Figure 2).

![Figure 5.2 - Importing tournament from website to the application](image)

To filter games by game field names type in the field name as it was created in the website in “Filter by field”. Only games scheduled to selected field will be displayed in the table. To filter games by date, select from the list exacting game date (see Figure 5.3).

![Figure 5.3 - Filtering by field name and date](image)

- Click on the line with the game in the table and then on the button «Start», to go directly to the control window.
- Click on the line with the game in the table and then on the button “Choose”, to go to game parameter window, fields with team names will already be filled in with previously selected teams (see Figure 5.4). Then click the “OK” button to go to the game control panel.
After the game has ended choose new game by tapping “Choose game”. The table line with played games will be grey. Choose next game to go to the game control panel (see Figure 5.5). Repeat these steps till all games have been played out.

5.2. **Import of the tournament result to the website**

If the tournament games were imported and used in the application, then the results are automatically synchronized and can be watched online at the tournament page on the website.
If in the tournament game settings “Hide event from public” was not selected, then the tournament will be available for anyone in the home page of the website. To go to the tournament view page, click on it. On the tournament page under the “Pitzone” tab the current game information will be displayed in online mode (see fig. 5.6). All changes during the game (game time, score, break time) will be automatically displayed in aforementioned tab.

Under the “Schedule” tab, game score also is displayed, the score is automatically imported from the application (see fig. 5.7). The tournament creator can manually change game score for each team.

After the end of the game it is necessary to approve the game score. To do that put a tick between the score of both teams. After the tick is set in the right upper corner notification text will appear “Score approved” and the score frame will turn green (see fig. 5.8).
6. Game history

History of all played games can be displayed by selecting “Game history”.

The history page displays all played games, time and date, team names and game score (see Figure 6.1). The time till the end of the main game time is highlighted with red color and with a minus sign.

Next to the date of the game separated with a slash “/” is the sequential number of the repeated game, if the Repeat games was set in the game settings (see fig. 3.4), in example for training games.

“/1” – indicated first game from repeated games, “/2” – second game from the series, “/3” – third game, etc.

Tap on the line with the game in the table to see more detailed information: penalties, points, time, rounds, team names (see Figure 6.2). On the top of the page, the sequential number of the repeated game in the series is displayed, for example third game “Take 3”, if repetition of the games was set in the game settings by selecting “Repeat games”. “Time remain” – the amount of time left till the end of the game. If the team scored a point in the game is indicated with a dark flag.
Tap on the button “Signature” to sign and indicate that information is correct and players have seen and accept the results of the game. To delete signature and sign it again tap “Clear”. To approve and add the signature tap “OK” (see Figure 6.3).

Report of the game can be downloaded in PDF format by tapping “Export PDF” in lower left corner (see Figure 6.34).
To delete the game history, tap on “Recycle bin” icon in the right upper corner. Window will open requesting confirmation of deleting history. Tap “OK” to confirm or “Cancel” to dismiss deletion of history (see Figure 6.5).

7. Game rosters
Roster represents all players in a team. Different amount of people can be submitted for the game but on the field can be only certain amount of players, for example not more than 5 players. Section “Game rosters” is meant for choice and confirmation of players that will be on the field for selected game. Creating teams and adding players is achieved in pbresultsonline.com website. If a team participates in the
tournament, then after data importation from website the information on team and its players will be available in the application.

On the “Game rosters” page, in the upper right is a **REFRESH** button. If the information of the team was changed on the website, it is necessary to import updated information to the application. To do that click on the REFRESH button.

On the first opening of “Game rosters” section a window will open for input the code of the tournament to import games and teams into the application (see Figure 7.1). On the next opening of the section “Game rosters” tap on “Choose game” in the upper right corner to change the game.

![Figure 7.1 - Importing teams from website into application](image)

Fill in the tournament code in “Tournament Code” field and press refresh button 🔄, shortly after that a table will be automatically filled in with tournament schedule. To filter games by game field name tap “Filter by field” and type the name of the field. To filter games by date, select exactly game date from the list. Tap on one of the games and then tap on the “Choose” button.

Team members are displayed in a table with first name, family name, photo, country, identification number and team role (player, captain). Team name is displayed over the table (see Figure 7.2).
Under the table a filter is available to filter members by name and/or surname (see Figure 7.3).

Select members that will play on the field and set team role (player or captain). To change players role tap on “Player” or “Pit crew” situated next to the player, selected buttons will become green. If the number of team captains or players is exceeded a notification will appear in the lower part of the screen (see fig. 7.4).
To select the coach of the team tap on button 👤 right next to the photo of the player (only one coach can be selected). To enlarge the profile picture of a player, click on it.

Figure 7.5 – Player settings

Tap on “Save” to confirm player selection for the game. After the successful saving team members an informative notification will appear (see fig. 7.5).
If double game mode was selected in the upper center names of the first team pair and in the upper right side next pair of team names will be displayed. To open a second team pair scroll (swipe) from right to left. To return to the first team pair scroll (swipe) from left to right.

People having only identification card with “Pit crew” status it is not possible to choose “Player” role, that button is inactive (see Figure 7.6). For people with status “Player” can be selected “Player” or “Pit crew”.

![Figure 7.6 - Pit crew](image)

Before the game amount of players and captains will be displayed in parentheses behind every team. In Figure 7.7 team UltraGB has 4 players and 1 captain (4/1).

![Figure 7.7 - Amount of players and captains is shown in parentheses](image)

During the game time or after the end of time the player selection cannot be changed, buttons will be inactive (Figure 7.8).

![Figure 7.8 - During or after the game players cannot be changed](image)
8. Web Scoreboard – Scoreboard in the website
Any device that has web-browser (smart TV, tablet, mobile phone, PC) and a connection to local network can display game scoreboard. Wireless connection scheme is shown in Figure 8.1

1. Make sure that all devices are connected to the same network as the tablet with the application. For example, using Wi-Fi router.

2. Open game control panel, in the lower part IP-address will be displayed (together with the port) of the tablet with the application (see Error! Reference source not found.).

3. Copy the IP-address (with the port) and fill it in the web-browser on the other device.

4. Amount of devices/monitors for wireless display of the scoreboard is not limited.

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**Figure 8.1 - Wireless connection and scoreboard**

- All devices must be connected to the same network
- The Software creates an IP address
- The IP address must be typed in the TV internet browser
- You can add an unlimited amount of monitors/screens