
ITASDI PROJECT

Innovative Teaching Approaches in development of Software Designed Instrumentation and its application in real-time systems

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Course ”Advanced LabVIEW Applications”

Laboratory no. 9 - Timing.

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1 Game

1.1 Goal

Create an application, which will simulate a game commonly named as *Invaders*. The aim of the game is to shoot the alien ships and prevent them from landing on Earth. Player will gain score if he shoots the alien ship and lose his life if alien ship will land on Earth.

1.2 General requirements

- The application should be hierarchical and scalable. Remember to use subVIs.
- Choose appropriate design pattern.
- Avoid using the local, global or shared variables.
- Close all opened references and handles.
- Application shouldn't crash. Inform the user about errors using an error cluster or a dialog box.
- Remember to prepare well documented code. Especially remember about: labels on long wires, description showing in context help, tip strips of controls and labels of constant values.
- All subVIs should have intuitive icon and description, which will be shown in context help.
- Use *Elapsed Time* express VI to control time execution.

1.3 Description

- Front panel contains two tabs: *Game* and *Ranking*. The *Game* tab is a main window, in which the ring with pictures of spacecraft, alien ship and shot bullets are present. The window includes indicators:
 - *Level* - show actual number of a difficulty level. Levels should be changed by e.g. 10s.
 - *Time* - time, which elapsed since start of the game.
 - *Life* - number of lives. Maximum is 3 lives. The user loses life when alien will get to the bottom line of a window (alien ship will land on Earth).
 - *START* - signalizes that game is started.
 - *Points* - user gets 100 points per one shot alien ship.
- Spacecraft movement is controlled by two controls: *Left* and *Right*.
- Fire is activated by *shoot* control.
- When alien ship is shot, the explosion should appear and player should get 100 points of score.
- Alien ship movement should be generated randomly to slide left and right side. The alien ship also should move from top to bottom with increasing speed depending on difficulty level of the game.

Please use the front panel from public folder.

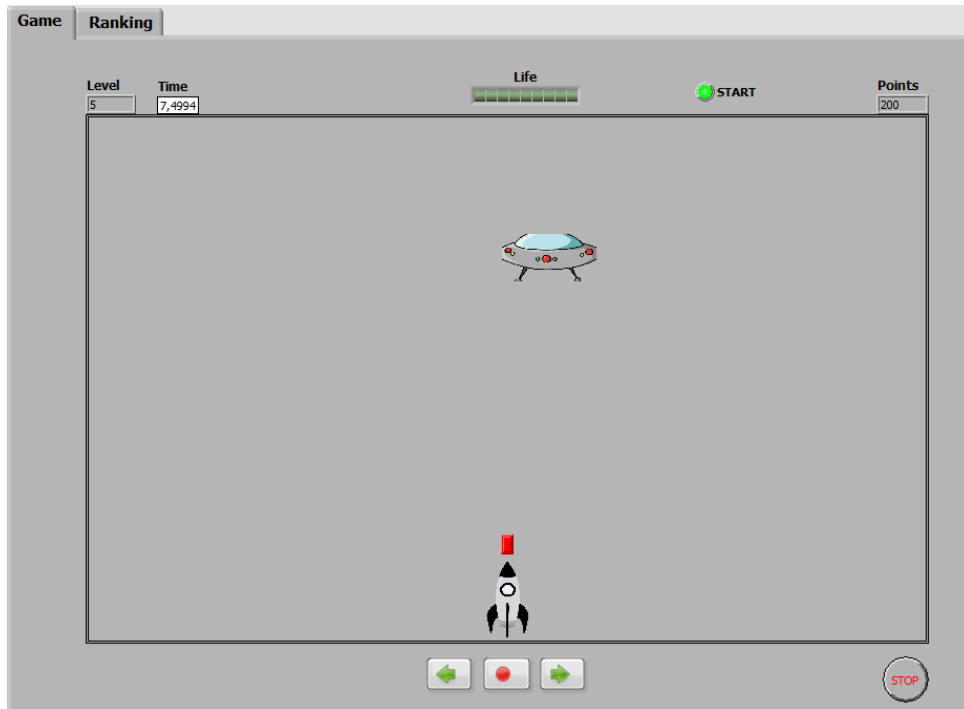


Figure 1: *Front panel* of a game.

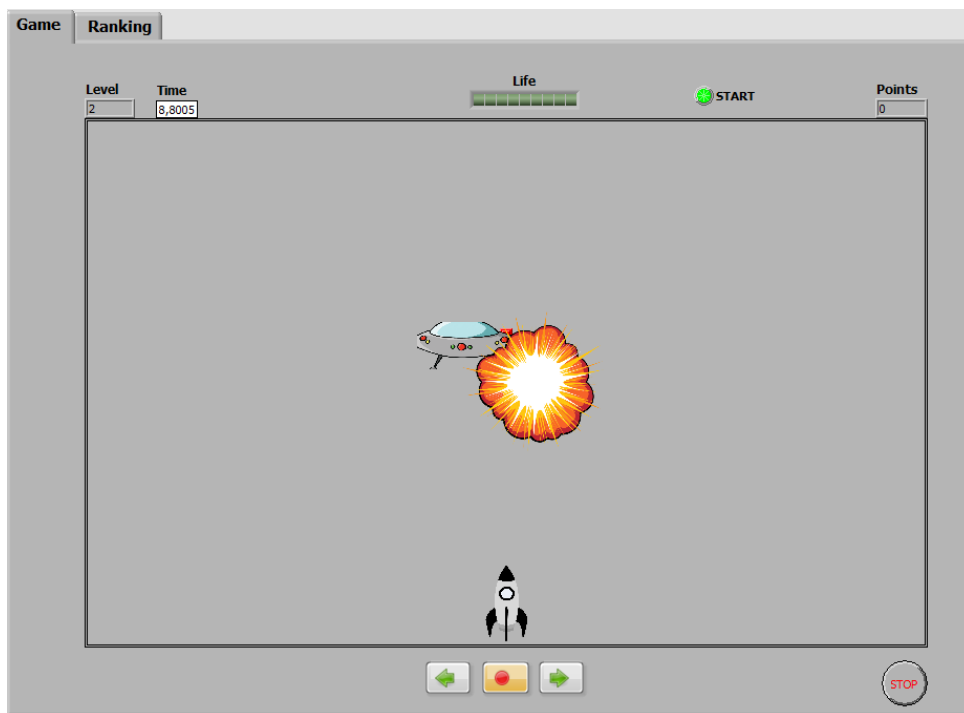


Figure 2: Sample screen of a game (alien ship is hit and explodes).