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***Odessa National Academy of Food Technologies***


**International Competition of Student Scientific Works**

# BLACK SEA SCIENCE 2021

## Information Technology, Automation and Robotics

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redistributed. A 2017 study showed that the People's Republic of China will have gained the most economically from AI with 26.1% of GDP by 2030. The relationship between artificial intelligence and employment has always been a complicated one. While AI has led to unemployment in some sectors, it has also offered new jobs through micro-economic and macro-economic effects. Economists have pointed out that in the past, technology has usually contributed to the increases in total employment, rather than decrease. However, they acknowledge that we are in uncharted territory with AI, and a little mistake could cost a lot in the long run. Furthermore, there have been multiple concerns that AI could be used by terrorists in order to instigate digital warfare. Things like lethal autonomous weapons should be properly governed, otherwise there is massive potential for misuse. One thing is certain, artificial intelligence has massively helped in every sector and continues to do so every day. Most of the things we have nowadays would not have been possible without the involvement of AI in today's most important industries.

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# ENVIRONMENT FOR TEACHING CHILDREN THE KAZAKH ALPHABET

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*Abstract. Creating a program for kindergarten and junior school students for learning purposes is an actual toFig of the present time, but it is not sufficiently developed in Kazakhstan. This project is a convenient program for teaching children the Kazakh alphabet with interesting tasks to test the learned material.*

***Keywords:*** *teaching children, learning, integrated environment, Kazakh alphabet, C++ Builder.*

## I. INTRODUCTION

The aim of the project is creating a environment for teaching the Kazakh alphabet.

The main tasks of the project:

– Analysis of graphical functions in C++;

– Development of a program for teaching the Kazakh alphabet using the graphical capabilities of C++.

Creating a program in C++ is the most interesting and effective way to gain and improve programming skills.

## II. LITERATURE ANALYSIS

### 2.1 Introduction to the C++ Builder environment

C ++ Builder is an accumulated high-level language. It allows you to create both high-performance applications and low-level libraries that work with hardware. Millions of programmers around the world work in C++ [1]. It is one of the most popular languages for writing computer programs and the most important language in which large budget computer games are created. C++ Builder integrates a complex library of STL, VCL, CLX, MFC, etc. objects, as well as a compiler, debugger, code editor, and many other components. The development cycle is similar to Delphi. Most of the components created in Delphi can be used in C++ Builder without changes, but not vice versa. Since C++ Builder comes from Delphi. Much of C++ Builder comes directly from Delphi. Thus, code written in Delphi can be converted for use in C++ Builder[2].

## III. OBJECT, SUBJECT, AND METHODS OF RESEARCH

### Creating projects (programs) in the C++ Builder environment

To create a project in Borland C ++ Builder or a similar compiler, go to File -> New and select the project type from there. For example, you can choose VCLForms Application-C ++ Builder (Fig. 1.1).

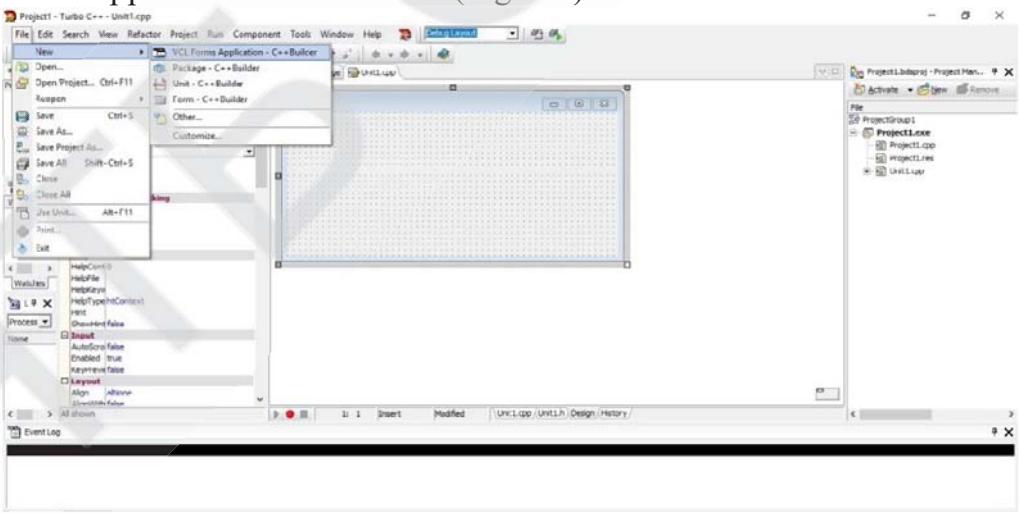

Fig. 1.1 - VCL Forms Application window

The C++ Builder creates main Project.cpp program. The Project that contains the Project.bpr file and WinMain() function. Windows applications use the WinMain () function instead of the Main () function[2]. When adding a new form, C++ Builder updates the project file and creates the following additional files:

– a form file with the .dfm extension containing information about the form;

– extended .cpp module file containing C++code ;

– A toFig file with the .h extension containing a description of the form class.

Select the Compile menu item to create the current project. To compile the project and create an executable file, select Run from the Run menu. As a result, the following form is obtained (Fig. 1.2).


Fig. 1.2 – Form window

Project1.bpr structure. The Project1.bpr file represents an XML Project (C++ Builder XML Project) that contains a description of the program being created. This is a text file, according to which the files must be compiled and linked to the project, and there are also paths that can be applied to directories.Модуль құрылымы. The module includes the implementation of the functional part of the object in C++ and, by condition, this is a Unit1.cpp file. Each such file is compiled into an object file with the .obj extension. When a new form is added to the project, a new module is created.

File structure.File structure (a file with the extension .h, by default Unit1.h) is created when a new module is created and contains a description of the form class. Such descriptions are created automatically and change when new components are added to the form or new event handlers appear. The file structure includes the interface, and the module itself contains the implementation of the method[4].

Form file. The form is one of the most important elements of the C ++ Builder application. The form editing process occurs when adding components to it, changing their properties, and creating event handlers. When a new form is added to the project, three separate files are created: 1) the module file (* .cpp) contains code for methods related to the form; 2) header file (* .h) contains a description of the form Class; 3) the form file (* .dfm) contains information about the declared (existing in Inspector objects) properties of components contained in the form.

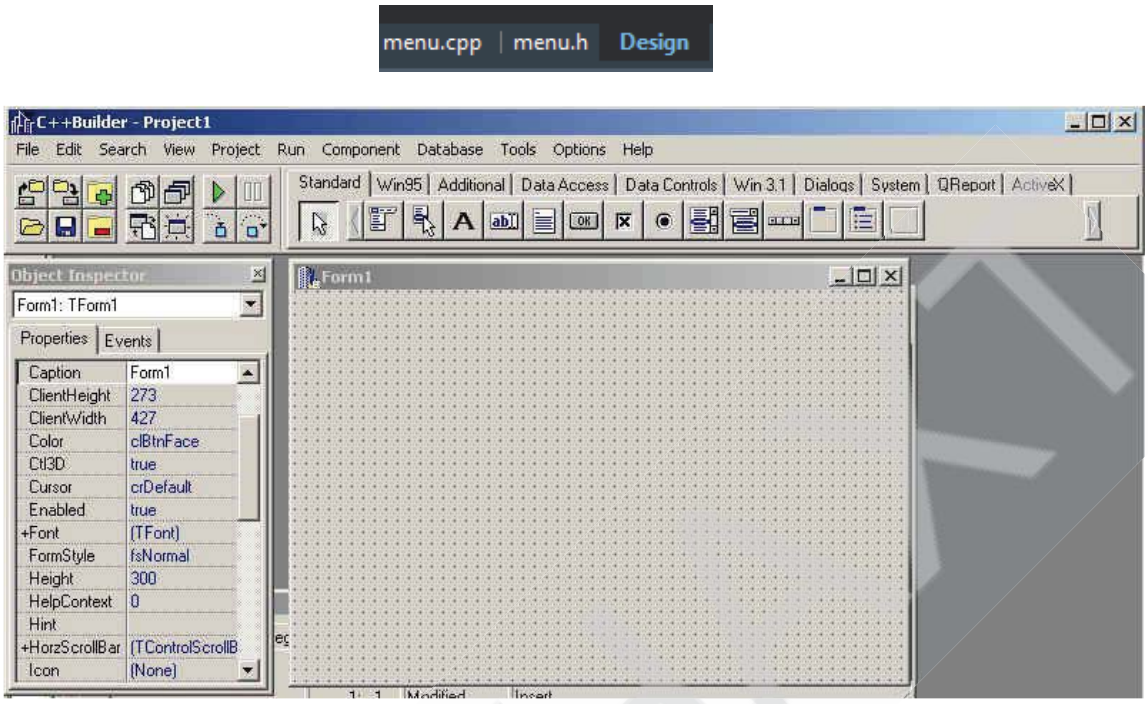


Fig. 1.3 – C++ Builder main window

– main window-C++Builder
– initial form window-Forml;
– properties window — Object Inspector;
– view object lists window-Object
– code writing window — Unitl.cpp. (The code editor window is completely closed by the original form window.) [5].

The main window contains the commands menu, toolbar, and component palette (Fig. 1.4).


Fig. 1.4 – Components of menu

Initial form window - preparation of the main window of the program (application) in which the Form1 is being developed(Fig. 1.5).

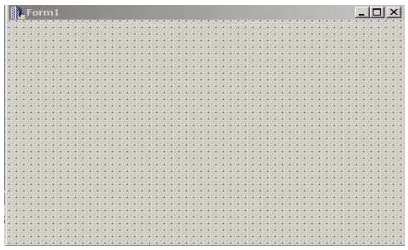


Fig. 1.5 - Form window

The properties window (Object Inspector) is a window in which you can set the values of the properties and events of an object (Properties & Events) when designing a program. The information in the forms inspector varies depending on the component selected in the form. Its appearance and behavior can be changed using the object inspector (Fig.1.6).

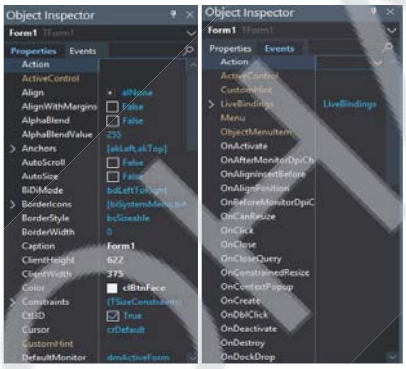


Fig.1.6 - Object Inspector window

## IV. RESULTS

### Design of the Kazakh alphabet program

The project Form1 contains the following components:

Image – the easiest way to display an illustration in a file with the extension .bmp, .jpg, or ico can be done using the Image component, whose icon is located on the Advanced tab of the component Palette. The program exists graphically. In the project, two buttons were placed on the home page. This buttons was entered as "Alphabet" and "Game" (Fig. 2.2).


Fig. 2.2 a - Layout of the Image component


Fig. 2.2 b – Home page of the project

Two Button components are installed on the form. Names were entered on each button, i.e. “alphabet”, “game” (Fig.2.3). After installing the buttons, enter their names, as well as colors, font type, and size. The program used 3 Button components.

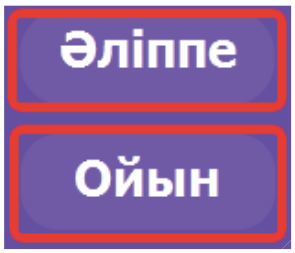


Fig. 2.3 - “alphabet”, “game” buttons

### 2.3 “Alphabet” window design

When you click the “Alphabet” button on the Home Page, a window with figure 2.4 opens. 42 letters of the Kazakh alphabet are entered in this window.


Fig. 2.4 a - “Alphabet” window

There OKRightDlg - simple dialog box, the 42 Label is installed. It is mainly used to name other components.


Fig. 2.4 b - “Alphabet” window and labels

On each letter were placed the corresponding Figtures. The Image component was used to place these images. The transition from one window to another window (OKRightDlg) has a name and "abc.h" should be written.

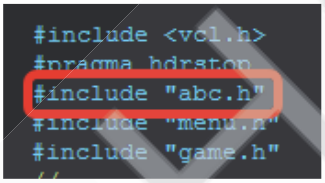


Fig. 2.4 - Example

The Button-component must write the following code: OKRightDlg ->Show(); . When you click on each letter, the corresponding image is pronounced (figure 2.6).


Fig. 2.6 - Placement of images

Figture-loading the image in C++ Builder, LoadFromFile-displaying the path in copmuter, and components were used to output audio(MediaPlayer).The MediaPlayer component provides playback of audio files of various formats (WAV, MID, RMI, MRZ), accompanied by the sound of full, animation and video (AVI) and music CDs.

To the LabelOnClick event:

Image2 -> Figture - > LoadFromFile("1.png");the code was written i.e. to install the image in the form.

The following code was written for the LabelOnClick event, that is, for creating an audio message.

```
MediaPlayer1->FileName="C:\\avi\\1.mp3";
 MediaPlayer1->Open();
MediaPlayer1->Play();
MediaPlayer1->FileName = Show the path
MediaPlayer1->Open(); - Open Sound
MediaPlayer1->Play(); - Sound play
```

### 2.4 Design game window

On the home page, when you click on the game button, a window opens with figure 2.7.


Fig. 2.7 – Game window

To create the game window, the Image and Button components were used. The PageControl component here allows you to combine multiple tabs with different controls into a single form when designing.

In the following figure 2.8 here, when you click on the letter OK, a certain letter is pronounced. You need to find the same letter . If you find a wrong letter, the letter will be painted in red color and will make a sound of error.

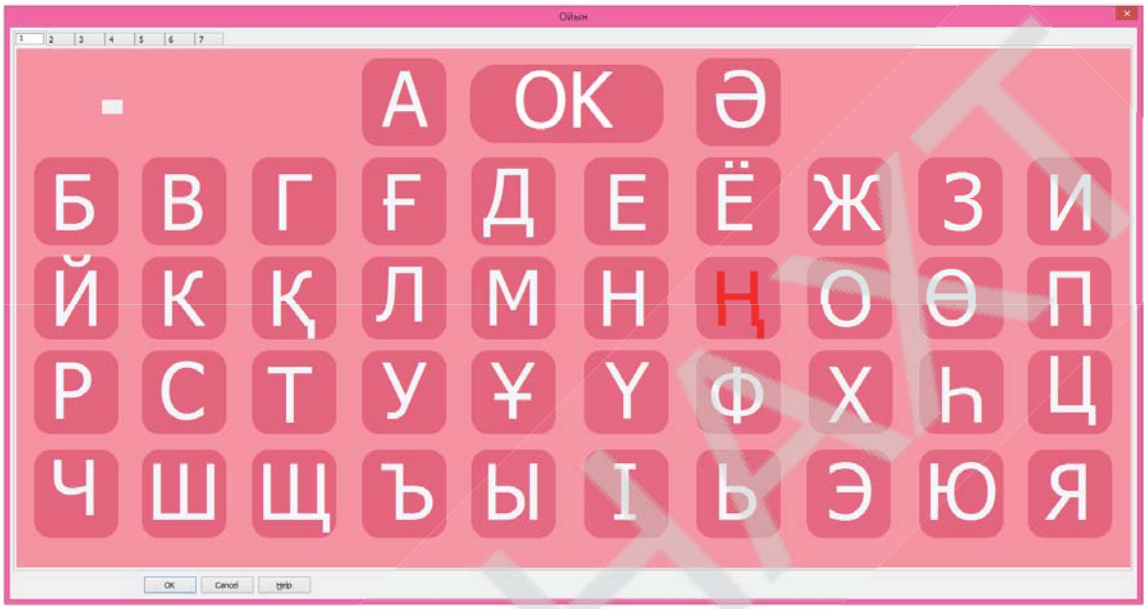


Fig. 2.8 – Error example

If this letter is found correctly, the color of the letter will be colored green and the message correct will appear (figure 2.9).


Fig. 2.9 – Right answer example

When you go to the internal pages of the game page window located above, the following window opens (figure 2.10).


Fig. 2.10 – Internal window of the game page

In this window, when you click OK, a certain letter sounds.We need to find 2 words starting with the same letter. In case of an error, the letter X appears in the image (figure 2.11).

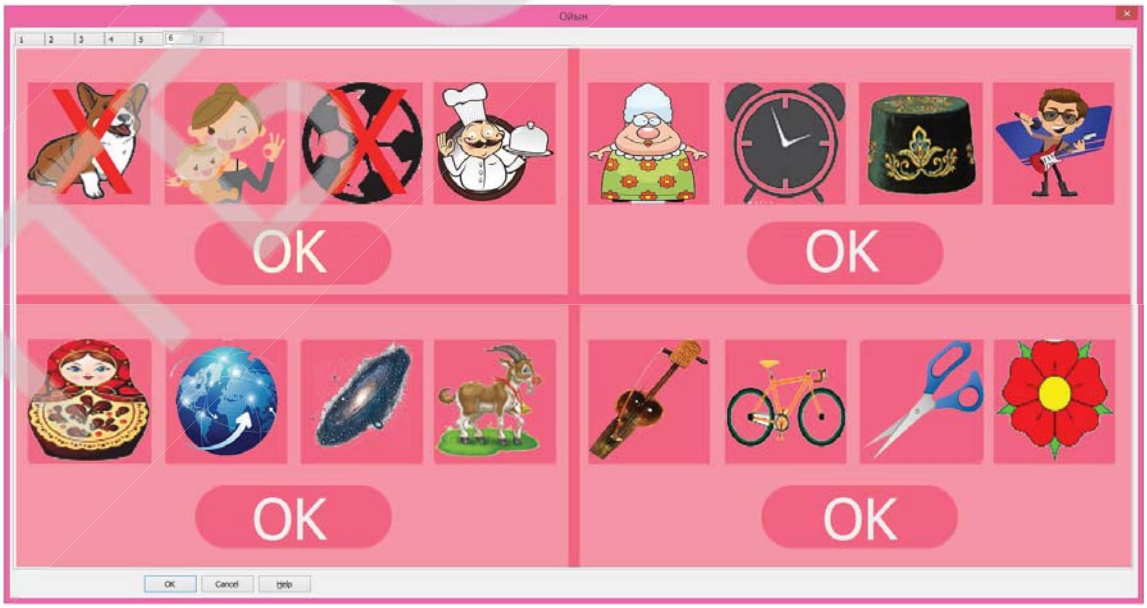


Fig. 2.11 – Error example

If you correctly find the image corresponding to the given letter, the letter o will appear in the image (figure 2.12).

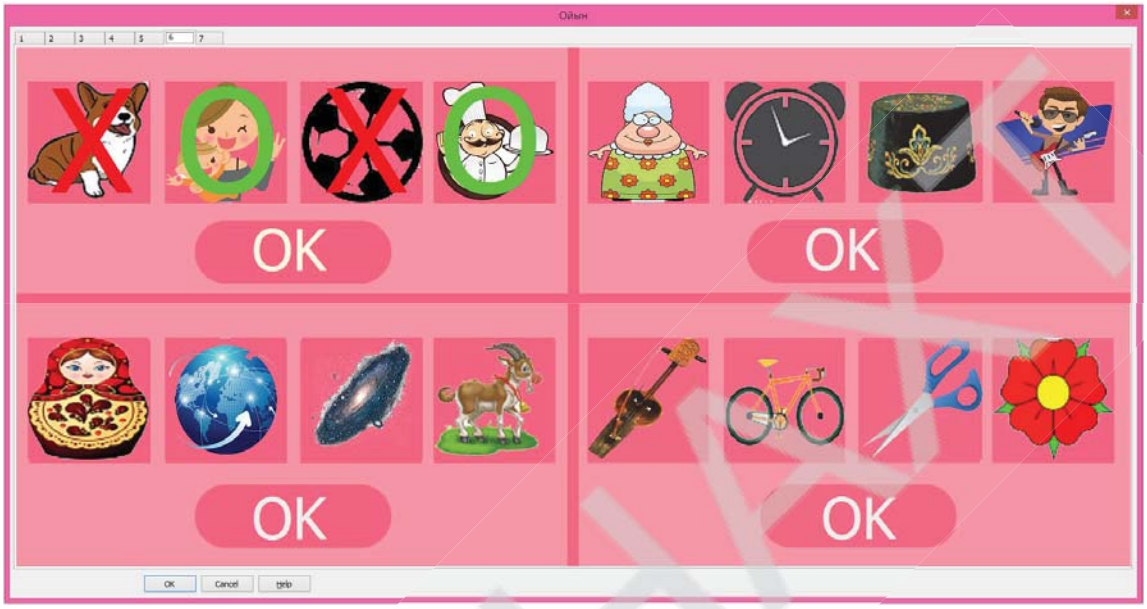


Fig. 2.9 – Right answer example

## V. CONCLUSIONS

Project result the project was developed in the C++ Builder environment. The program offers to create a project for learning the Kazakh alphabet. In the course of the work, several effective ways to use the mediplayer component, the transition from one form to another, and the use of the Label component as a button were considered.

During the development of the project, such programs were used:

- C ++ Builder 6;
- Adobe photoshop;
- Adobe illustrator.

The obtained theoretical knowledge was applied in practice.This project is a very interesting program for students of kindergartens and junior classes.

## VI. REFERENCES

Currently, much attention is paid to domestic products. Therefore, a project was developed to teach the Kazakh alphabet in the state language for kindergarten children and students of the preparatory school group. It is designed in such a way that the project interface is very user-friendly.

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## *MONITORING AND MANAGING SYSTEM OF MICROCLIMATE INDICATORS IN EDUCATIONAL FACILITIES*

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*The algorithm and structure of an automated system for monitoring microclimate indicators in educational facilities are exposed. A model of for monitoring and managing microclimate system based on Phoenix Contact hardware and software has been developed. A user-defined web-interface for remote monitoring and management of the current layout from mobile devices has been developed.*

### *INTRODUCTION*

Nowadays, the microclimatic conditions in which the staff of a particular enterprise, institution, or educational institution works are of great importance.

Measuring devices that are offered on the market today have a high cost and will not show the dynamics of changes in microclimate parameters over a long period of time. The process of measuring with separate measuring devices requires personnel who will take the indicators of measuring devices, keep a report in manual mode.

In the modern world, the trend of using alternative energy sources and improving the efficiency of power systems and their automation has long been spreading. One of the most energy-efficient structures is the urban infrastructure of electrical communications for heating educational premises, the modernization of

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