
Artificial teacher

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Abstract

In fact there are a lot of built-in learning management systems, but there are not any system that combines the newest technologies in education - there are not any system that uses artificial intelligence and virtual reality at once.

The core aim of our project is to create system that combines these techniques and to build "artificial teacher" that combines best practices in organizing training so that it will be interesting, useful and much easier for the students. The most important part of our project is to fertilize students, showing them that their subjects is not as difficult as sound.

Teacher will train student by lessons and different types of exercises which will include theoretical part, but will mostly be oriented practically.



1 Introduction

"Learning management system"

It is a software application for the administration, documentation, tracking, reporting and delivery of educational courses or training programs.

"Artificial teacher"

It is a system that must teach students by interactive, interesting, useful and much easier way for them. It can be represented as "individual mentor" in specific subject.

There are a lot of built-in learning management systems, but there are not any system that combines artificial intelligence and virtual reality at once.

The aim of our project is to create system that to build "artificial teacher" by following newest technologies and best practices in organizing training so that it will be interactive, interesting, useful and much easier for the students. The most important part of our project is to fertilize students, showing them that their subjects is not as difficult as sound.

Teacher will train student by lessons and different types of exercises which will include theoretical part, but will mostly be oriented practically.

2 Implementation

Our project is divided by two parts:

beauty Design, which must implement human facial expressions for better sense of reality.

intelligence Application Public Interface that must return material which must be learnt by student

communication Live bot chat for all questions during the lesson that "artificial teacher" presents.

Each part has a lot of specifics and thus that this project is so hard, but it would give a different view of learning, a more modern look.

2.1 Problems

2.1.1 Application Public Interface

The most important thing when you develop artificial intelligence is that you must have enough data, which you will use for training of the AI.

Current training data is only sample data and it is not so formal, but is enough for start.

2.1.2 Design

Design is not ready yet, because it costs a lot of time until we design 3D object and until we implement all human facial expressions.

2.1.3 Communication

The biggest problem in this part of the project is how to understand what the student want to know. It will be solved by

”machine learning” where the data will be conversations between real students and teachers.

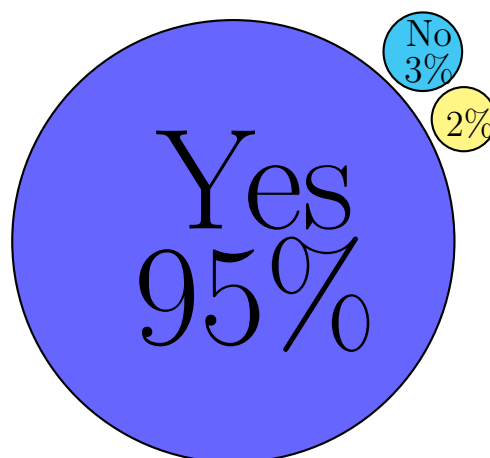
3 Techniques

- C++ for AI in combination → FastCGI++ for the API
- WebGL for rendering the 3D model of the teacher
- MakeHuman for building the 3D model of the teacher

4 Future

Future development includes building a 3D model of the teacher and developing of the facial human expressions together with psychologists. It includes also improving ”intelligence” of the teacher and applying the technology in school starting from Sofia Professional High School of Electronics ”John Atanasov” and Sofia High School of Mathematics ”Paisii Hilendarski”.

The diagram shows the results of non-representative survey conducted among 55 students of SHSM



So those results stimulate us to make it better and better and to make it make more interesting, more interactive and more entertaining.

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