Title of the project: AP19677321 «Development of digital experimental facilities for studying physics phenomena in laboratory conditions of educational institutions using modern computer technologies»

Relevance:

The subject "Physics" is a quantitative-experimental science, where the successful study of its laws depends on the organization and conduct of field experiments and measurements both in schools and universities. Many physical phenomena are fleeting, difficult to reproduce experimentally in the laboratories of educational institutions. However, today, thanks to the development of innovative technologies and methods of artificial intelligence, in particular, the recognition of moving mechanical objects using computer vision, ways are opening up for solving complex experimental problems, as well as creating laboratory facilities for conducting full-scale experiments to study physical phenomena.

Purpose of the project: The purpose of this project is to develop digital experimental facilities for studying physics phenomena in laboratory conditions of educational institutions using innovative computer technologies

Expected and achieved results:

The project is expected to result in the production of industrial prototypes of laboratory installations based on computer vision technology and artificial neural networks, and having a small size, for studying the laws of physics in secondary schools and universities. The main results of the project are also the publication of 3 articles in journals included in the WoS and / or Scopus database with a percentile of at least 35%, obtaining titles of protection in the form of copyright certificates, patents in the international or Kazakhstan patent bureau, and the publication of a scientific monograph.

Research group and project management:
project manager - Medetov Bekbolat Zhaksylykovich
research group:

Names of research team members (project position) with their identifiers (Scopus Author ID, Researcher ID, ORCID, if any) and links to relevant profiles

No.	Surname, name, patronymic (if any), education, degree, academic title	Main place of work, position	Hirsch index, ResearcherID, ORCID, Scopus Author ID (if available)	Role in the project
1	Medetov Bekbolat Zhaksylykovich, PhD	KazATU named after Saken Seifullin, acting	h-index: 2 Scopus Author ID:	Project Manager. General scientific management of the

		associate professor	56283148600 Web of Science Researcher ID: B-2718-2015 ORCID: 0000-0002-5594-8435	project, participation in the development
2	Serikov Tansaule Gabdymanapovich, PhD, associate professor	KazATU named after Saken Seifullin, associate professor	h-index: 4 Scopus Author ID: 57191032929 Web of Science Researcher ID: AYA-7070-2020 ORCID: 0000-0002-4525-5299	Leading researcher of the project. General scientific management of the project, participation in the development
3	Zhetpisbayeva Ainur Tursynkanovna, PhD, Associate Professor	KazATU named after Saken Seifullin, associate professor	h-index: 3 Scopus Author ID: 57189702755 Web of Science Researcher ID: AYA-7070-2020 ORCID: 0000-0002-4525-5299	Chief researcher of the project. General scientific management of the project, participation in the development
4	Khamzina Botagoz Yerkenovna, Doctor of Pedagogical Sciences, Associate Professor	KazATU named after Saken Seifullin, associate professor	h-index: 0 Scopus Author ID: 57195501912 Web of Science Researcher ID: U-2890-2017 ORCID: 0000-0002-0552-7464	Senior researcher of the project. Participation in the development of a common methodology
5	Akhmediyarova Ainur Tanatarovna, PhD, associate professor	Kazakh National Research Technical University named after K.I. Satpaeva, professor	h-index: 4 Scopus Author ID: 57194509088 Web of Science Researcher ID: ABA-7042-2020 ORCID: 0000-0003-4439-7313	Chief researcher of the project. Participation in the development of terms of reference and in pilot samples of software and hardware modules

				of the system
6	Albanbay Nurtai, PhD	KazNU named after Al-Farabi, lecturer	h-index: 1 Scopus Author ID: 57222517592 Web of Science Researcher ID: AAD-2691-2020 ORCID: 0000-0002-3393-7380	Software Engineer
7	Iskaq Aset Erikuly, Master of Technical Sciences	Autonomous Organization of Education "Nazarbayev Intellectual Schools", Research Fellow	h-index: 1 Scopus Author ID: 57207202175 Web of Science Researcher ID: AGN-3047-2022 ORCID: 0000-0003-1196-3155	Software Engineer

List of publications and patents published within the framework of this project: (with links to them):

Information for potential users:

Additional Information: