

Report
about the scientific activity of the Department "Communication Technologies and Systems" for the 1st half of the year 2023 years

1. Выполняемые Research projects performed

1) **Title of the topic:** «"Research of signals and features of their transmission in monitoring systems of construction objects and environmental monitoring".

Basis for implementation: initiative theme for 2023-2025

Scientific supervisor: N. B. Kaliaskarov

Direct results: a general structural and functional scheme of the vehicle performance management system for environmental monitoring systems has been developed. Computer modeling in MATLAB/Simulink software environments is performed, and the nature of the interference effect on the generated signal is studied.

An analytical study of the occurrence of interference and collisions arising due to weather conditions was carried out on the example of the Bakyrchik mining enterprise.

Uploaded results:

Scope of work performed on this topic:

- a) Number of submitted articles – 12 (No. 2.2 3,6,9,8,1,10,12,13,14,15,16,17,9,8,1,10,12,13,14,15,16,17)
- b) Number of published articles – 1 (No. 2.3-1)
- c) Number of utility model patents – 1 (No. 4.2 3)
- d) Number of prepared utility model applications – 1 (No. 4.1.3)
- e) The number of copyrights on SIS-3 (No. 4.3 1,3,5)
- f) Number of reports at conferences – 12 (Nos. 2.4 2,3,10,11,13,14,15,18,19,20,24,25)
- g) Number of theses – 3

2) **Name of the topic:** "Electrical engineering and electronics"

Basis for implementation: research plan of the department for 2022-2023 academic year

Scientific supervisor: N. B. Kaliaskarov

Direct results: modeled and assembled the following devices: a sound control device; a current control device using Wi-Fi technology; a device for automatic window control. The results of stability studies of various types of antielectrodes for painting solar panels are published; Classified. External factors affecting the reliability of optical cables in telecommunications systems are classified.

Indirect results:

Scope of work performed on this topic:

- a) Number of submitted articles – 6 (No. 2.2 2,9,1,11,10,12,)
- b) Number of published articles – 0
- c) Number of utility model patents – 2 (No. 4.2-1.2)
- d) Number of prepared utility model applications – 1 (No. 4.1 1)
- e) The number of copyrights on SIS-2 (No. 4.3-2.6)
- f) Number of reports at conferences – 17 (#2.4 1,4,5,6,7,8,9,14,15,16,17,19,21,24,25,26,27)
- g) Number of theses – 5

3) **Name of the topic:** "Improving the technical level of structural parts of electromechanical equipment in order to ensure their reliability and service life"

Basis for implementation: research plan of the department for the 2022-2023 academic year

Scientific supervisor: N. B. Kaliaskarov

Direct results: modeled and integrated photovoltaic systems for electromechanical equipment are modeled and integrated: an option for providing integrated control, in MATLAB/Simulink software environments.

Developed as a window-optical sensor for monitoring the stability of the sides of quarries intended for mine lifting machines.

Indirect results:

- a) Number of submitted articles – 5 (No. 2.2 4,5,7,11,17,7,11,17)
- b) Number of published articles – 0
- c) Number of utility model patents – 1 (No. 4.2 2)
- d) Number of prepared utility model applications – 1 (No. 4.1.2)
- e) The number of copyrights on SIS-1 (No. 4.3.4)
- f) Number of reports at conferences – 8 (No. 2.4 9,11,14,20,21,23,24,25)
- g) Number of theses – 1

4) **Title of the topic:** "Use of energy-saving and high-tech technologies in energy supply systems"

Basis for implementation: research plan of the department for the 2022-2023 academic year

Scientific supervisor: Yessenzholov U. S.

Direct results: спроектирован a current control device was designed using Wi-Fi technology, based on the AK-350 encoder.

Спроектировано уА hidden communication device basedлемента on the RENATA R 317, SR 516 SW power supply element was designed.

Indirect results:

Scope of work performed on this topic:

- a) Number of submitted articles – 5 (No. 2.2 2,8,11,13,17,8,11,13,17)
- b) Number of published articles – 0
- c) Number of utility model patents – 1 (No. 4.2 3)
- d) Number of prepared utility model applications – 1 (No. 4.1.3)
- e) The number of copyrights on SIS-1 (No.4.3.6)
- f) Number of reports at conferences – 8 (Nos. 2.4 4,11,12,14,19,20,24,25)
- g) Number of theses – 2

2. Publication of research results

2.1 Books (monographs) (none)

2.2 Submitted articles for publication in journals

N o n/	a Full name of the author (s)*	Article title	Country, journal title	Scientometric indicators of the journal
1.	Manbetova Zh. D. (S. Seifullin KazATU), Imankul M.N. (L. N. Gumilyov Enu), Dunaev P. A. (S. Seifullin KazATU), Kaliaskarov N. B..	Kalalyk infra-kurylym aukymynda zharyktandyrudy intellektualdy baskaru ushin lorawan technologiya syn paidalan	Republic of Kazakhstan, Trudy University	0.059 COXON KazBC base
2.	Vadim Carev (Czech Technical University, Prague); Jan Rohac (Czech Technical University, Prague); Sergey Tkachenko (Immanuel Kant Baltic Federal University); Andrey Shpilevoy (Immanuel Kant Baltic Federal University); Nurbol Kaliaskarov	Electronic battery switch for BLDC motor	Italy, Analog Integrated Circuits and Signal Processing	S (41 percentile)
3.	Kaliaskarov N. B.; Ivel V. P. (SKU named after M. Kozybaev); Gerasimova Yu. V. (SKU named after M. Kozybaev); Razinkin V. P. (NSTU named after K. Marx Ave., Russian Federation); Yugai V. V. (APP)	Remote monitoring of room temperature and humidity (objects) based on the dual-processor Wi -Fidata transmission system	of the Russian Federation, Journal of Communications Technology and Electronics	S (25th percentile)
4.	Aldoshina O. V.	Integrated photovoltaic systems on the roof of buildings: an option for ensuring integrated management	of the Republic of Kazakhstan, Vestnik KazNPU im. Abaya, series "Physical and mathematical sciences"	0.086 COXON base of
5.	KazBC U. S. Yessenzholov; N. B. Kaliaskarov.	Implementation of traffic protection based on ipsec vpn technology and network modeling on ensp software environment	of the Republic of Kazakhstan, bulletin of the M. Tynyshpaev Azakh Academy of Transport and	0.028 KOKSON base KazBC

			Communications	
6.	Gavrilova M. A.	Remote information processing by means of a mobile phone	of the Republic of Kazakhstan, "Bulletin of KazNPU named after M. Tynyshpaev. Abaya, series "Physical and mathematical sciences"	0.086 COXON base KazBC
7.	Shakhatova A. T., Mirgalikyzy T. (L. N. Gumilyov ENU)	Algorithm for the combined formulation of the inverse problem of determining the conductivity in the near-well space	of the Republic of Kazakhstan, "Proceedings of the University"	0.059 COXON base KazBC
8.	Shishlenin M. A. (NSU, Russia), Shakhatova A. T., Mirgalikyzy T. (ENU named after L. N. Gumilyov)	Recovering of the reservoir conductivity by measurements on the surface using GPR data	PK, Eurasian journal of mathematical and computer applications	S (37 процентиль)
9.	Kaliaskarov N. B., Esenzholov U. S., Kokkoz M. M. (ITB), Baiseitov G. N. (R&D center "Kazakhstan Engineering"), Zhantlesov A. U. (R&D center "Kazakhstan Engineering"), Dolya A.V. (R&D center "Kazakhstan Engineering")	Remote monitoring of the technical condition of military facilities using wireless communication	Украина, Eastern-European Journal of Enterprise Technologies	S (40 процентиль)
10.	Vadim Carev (Ostrava Technical University, Czech Republic), Jaroslav Zdrálek (Ostrava Technical University, Czech Republic), Sergey Tkachenko (I. Kant BFU, Russian Federation), Arkadii Klimentov (Gubkin Russian State University of Oil and Gas), Aleksandr), Alexander Smirnov (Russian State Agrarian University — K. A. Timiryazev Moscow Agricultural Academy, Russia), Nurbol Nurbol	Kaliaskarovloop antenna UAV for ionospheric communication	Switzerland, Drones	S (74th percentile)
11.	Vadim Carev (Ostrava Technical University, Czech Republic), Sergey Tkachenko (I. Kant BFU, Russian Federation), Andrey Shpilevoy (I. Kant BFU, Russian Federation), Nurbol Kaliaskarov Dmitry Ozhigin (MDiG)	Electronic battery switch for BLDC motor	Netherlands, eTransportation	WoS Q1
12.	Vadim Carev (Ostrava Technical University, Czech Republic), Jaroslav Zdrálek (Ostrava Technical University, Czech Republic), Sergey Tkachenko (I. Kant	Kaliaskarovloop antenna UAV for ionospheric communication	Netherlands, eTransportation	WoS Q1

	BFU, Russian Federation), Arkadii Klimentov (Gubkin Russian State University of Oil and Gas)И.М. , Aleksandr), Alexander Smirnov (Russian State Agrarian University — K. A. Timiryazev Moscow Agricultural Academy, Russia), Nurbol			
13.	Gavrilova M. A. Kaliaskarovnb	Remote information processing via a mobile phone of the Republic	of Kazakhstan , Bulletin of the Karaganda University	Q3
14.	Kaliaskarovnb	Research and selection of parameters of wireless systems data transmission for remote environmental monitoring stations	Ukraine, Eastern-European Journal of Enterprise Technologies	S (40th percentile)
15.	Kaliaskarov N. B.	Development of a structural and functional scheme of a distributed wi-fi monitoring system for bridge structures and construction buildings	RK, AUE Bulletin	0,154 COXON ,
16.	Belik G. A. Development of a distributed wireless wi-fi system for monitoring metrological indicators of the	Republic of Kazakhstan, Vestnik KazNPUwi-fi im	RK, " Bulletin of KazNPU. Abaya, series "Physical and mathematical sciences"	0.086 COXON KazBC database
17.	Kaliaskarov N. B.	Designing a digital data transmission system using computer modeling	of the Republic of Kazakhstan, Bulletin of Toraigyrov University	0.131 COXON KazBC database

Итого подготовлено статей, A total of 17 articles were prepared 17 , из них: в рейтинговых журналах – , including 17 published in rating journals

Д/З – 4

CIS – 3

RC- 10, including TUTY – 2 Kar

By students / with students – - /

Undergraduates / with undergraduates – - / -

Doctoral students / with doctoral students - - / -

2.33 Published articles in journals

№	Full name of the author (s)	Article title	Country journal title, issue year	Scientometric indicators of the journal
1.	Kaliaskarov N. B. Sagyndyk A. B. (Toraigyrov University) Bulatbaev F. N. (ES) Bulatbaeva Yu. F. (APP) Yessenzholov U. S..	Development of a structural and functional scheme of a distributed wi-fi monitoring system for bridge structures and construction buildings	Republic of Kazakhstan, University Proceedings No. 4, 2022	0.059 COXON KazBC database

Total: published articles, total- 1

from them: in rating journals-

MAP -11

RK -11

CIS- --

D/W- - / -

Students / with no / no

Undergraduate students – with graduate students-

2.44 Published reports (abstracts) at conferences

№	Full name of the author (s)	Article title	Country, status and title of the conference, date and venue
1.	Bakirov E. V. (RET 21-2), Razinkin V. P. (NSTU NETI, Russia)	Application software packages in educational activities for students of the specialty "Radio Engineering, Electronics and Telecommunications".	Kazakhstan, International Scientific and practical Conference "Formation of intellectual capital in the conditions of digital transformation: experience, challenges, prospects", 14.12.2022, Karaganda Technical University named after Abylkas Saginov
2.	Gavrilova M. A.	Optimization of algorithms for placing base stations for wireless access networks	of the Republic of Kazakhstan, International Scientific and Practical Conference "Formation of intellectual capital in the conditions of digital transformation: experience, challenges, prospects", 14.12.2022, NAO Karaganda Technical University named after Abylkas Saginov
3.	Gavrilova M. A.	Study of the modes of operation of the transit network of operators to increase their throughput.	Kazakhstan, international scientific and practical conference "Formation of intellectual capital in the conditions of digital transformation: experience, challenges, prospects", 14.12.2022, NAO Karaganda Technical University Abilis Saginova
4.	of Galimyanov I. R. (RET 19-2), aldoshina O. V.	Device for automatic control of window using technologies like wi-fi	Kazakhstan, international scientific and practical conference "Formation of intellectual capital in the conditions of digital transformation: experience, challenges, prospects", 14.12.2022, NAO Karaganda Technical University Abilis Saginova
5.	of Galimyanov I. R. (RET 19-2), Gavrilova M. A.	Wireless control of the castle	of Kazakhstan, international scientific and practical conference "Formation of intellectual capital in the conditions of digital transformation: experience, challenges, prospects", 14.12.2022, NAO Karaganda Technical University Abilis Saginova
6.	of Galimyanov I. R. (RET 19-2), Gavrilova M. A.	Wireless control current	of Kazakhstan, international scientific and practical conference "Formation of intellectual capital in the conditions of digital transformation: the experience challenges, prospects", 14.12.2022, NAO Karaganda Technical University Abilis Saginova
7.	of Galimyanov I. R. (RET 19-2), Kaliaskarov N. B.	Wireless control of electricity using technologies like Wi-Fi	Kazakhstan, international scientific and practical conference "Formation of intellectual capital in the conditions of digital transformation: experience, challenges, prospects", 14.12.2022, NAO Karaganda Technical University Abilis Saginova
8.	of Galimyanov I. R. (RET 19-2), Belik A. G.	Telegraph key for learning Morse code	of Kazakhstan, international scientific and practical conference "Formation of intellectual capital in the conditions of digital transformation: experience, challenges, prospects", 14.12.2022, NAO Karaganda Technical University Abilis Saginova
9.	AITK.Aliev A. R. (RET 22-1)	3D модельдеудің негізгі механизмдері	РК, Республиканская студенческая научная конференция "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
10.	Aitmukhambet A. A. (RET 22-1)	Implementation of FACE ID for authentication	of the Republic of Kazakhstan, Republican Student scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical

			University named after Abylkas Saginov
11.	Bolatbekov D. N. (RET 22-2)	Wireless sensor networks: opportunities and current problems	of the Republic of Kazakhstan, Republican Student scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
12.	Bakirov E. V. (RET 21-2)	Lava lamps as a solution for Internet encryption	of the Republic of Kazakhstan, Republican Student scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
13.	Galimyanov I. R. (RET 19-2)	Distance measurement using technology Wi-Fi	of the Republic of Kazakhstan, Republican Student scientific conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
14.	Garifullinov D. N. (RET 21-1)	Matematikalyk modeldeu negizderi	RK, Republican student scientific conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
15.	Zhansagym N. S. (RET 22-1)	Evolution of the Internet based on WEB 3	of the Republic of Kazakhstan, Republican student scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
16.	Zhumatayev D. A. (RET 22-1)	Research of human authentication methods	of the Republic of Kazakhstan, Republican Student scientific conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
17.	Zhumataev D. A. (RET 22-1)	Evolution of virtual reality	systems of the Republic of Kazakhstan, Republican Student scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
18.	Zaitsev A. (RET 21sr)	Structure of the packet-switched network	of the Republic of Kazakhstan, Republican Student scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
19.	Zeynollin A. T. (RET 22-2)	ICT and Cybersecurity: challenges and opportunities	of the Republic of Kazakhstan, Republican Student Scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical

			University named after Abylkas Saginov
20.	A. A. Kirichenko (RET 21-2)	Protection of communication channels	of the Republic of Kazakhstan, Republican Student scientific conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
21.	Кобасов R. A. Kobasov (RET 22-2)	Influence of radio technologies on space research	of the Republic of Kazakhstan, Republican Student Scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, Karaganda Technical University named after Abylkas Saginov
22.	Konekova Zh. M. Konekov (RET 21-2)	Telecommunications system of country house	management of the Republic of Kazakhstan, Republican student scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
23.	Korbit A.V. (RET 22-2)	Analysis of directions for improving the efficiency of modern satellite communication systems operating in the ku and ka bands	of the Republic of Kazakhstan, Republican Student Scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named
24.	Манатоваafter Abylkas SaginovҰN.R. Manatov (RAT 21-1)	Matlab / Simulink bagdarlamalyk ortasynda tasymaldaushy terbelisti kalpyna keltiru zhuyesin modeldeu	of the Republic of Kazakhstan, Republican student scientific conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
25.	Самыратов Samyratov A.N. (RET 20-1)	MATLAB / SIMULINK bagdarlamasynda computerlik modeldeu arkyly signaldy zhiberudin sandyk zhuyesi	RK, Republican student scientific conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
26.	Shander V. I. (RET 22-2)	Satellite TV-Universities of the Republic of	Kazakhstan, Republican Student scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov
27.	Shevchenko E. E. (RET 22-2)	Use of ICT in education	of the Republic of Kazakhstan, Republican student scientific conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the University; Part 2; April 13-14, 2023, NAO Karaganda Technical University named after Abylkas Saginov

Total: published reports, total- 27
of them: on international- 0
Map- 27
RK - 27
CIS- 0-19

D/W- -
Students / with 19/6
undergraduate students / undergraduates -27 no/no

3. Participation in exhibitions - no

4. Inventive activity

4.1 Filing of patent applications

No n/	a Full name of the author(s)*	Name of the invention	Applicant	Registration number
1.	Galimyanov I. R. (RET 19-2) Salimzhanov R. A. Belik G. A. Gavrilova M. A.	Device for sound control	Belik G. A.	No. 2023/0244.2 from 14.03.2023
2.	Alkina K. Yu. Mekhtiev A.D. (KazATYS. Seifullin KazATU) Alkina A.D. (ES) Neshina E. G. (ES) Kaliaskarov N. B. Madi P. Sh . Malikov N. M. (ES) Yugay V. V. (APP)	Fiber-optic system for monitoring the deformation and displacement of roof rocks in an explosive environment	Alkina K. Yu	. No. 2023/0231. 2 dated 10.03.2023
3.	Galimyanov I. R.(RET 19-2) Aldoshina O. V. Esenzholov U. S. Belik G. A.	Current management using Wi-Fi technology	Belik G. A.	No. 2831071 of 14.03.2023

4.2 Obtaining patents

No n/	a Full name of the author (s)*	Title of the invention	Patent	holder Patent number
1	Galimyanov Ildar Railovich (RET 19-2) Belik Galina Alekseevna Kaliaskarov Nurbol Baltabayevich Aldoshina Oksana Vladimirovna	Device for automatic window control	Belik Galina Alekseevna	Utility model patent No. 7675
2	Neshina E. G. (ES); Mekhtiev A.D.(S. Seifullin KATU); Kaliaskarov N. B.; Bilichenko E. N. (ES); Alkina A.D. (ITB); Malikov N. M. (ES)	Fiber-optic sensor for monitoring the stability of the sides of quarries	Neshina E. G. (ES)	Utility model patent No. 8004
3	Belik G. A. Galimyanov I. R. (RET 19-2) Kaliaskarov N. B. Sarsembaev E. A. Esenzholov U. S.	Hidden communication device	Belik G. A.	Utility model patent No. 8023

4.3 Obtaining certificates of state registration of rights to copyright objects

№	Full name of the author (s)*	Name Copyright object name Copyright	owner (s)	Certificate number, date
1	Gavrilova M. A. Belik G. A. Bakirov E. V. (RET 21-2)	Remote information processing by mobile phone	Gavrilova M. A. Belik G. A. Bakirov E. V. (RET 21-2)	No. 33610 Of 15.03.2023

2	Aldoshina O. V. Kaliaskarov N. B.	Results of stability studies of various types of antielectrodes for painting solar batteries	Aldoshina O. V. Kaliaskarov N. B.	No. 33576 Of 15.03.2023
3	Esenzholov U. S. Sarsembayev E. A.	MPLS negizinde zheli kauinsizdiginińcińdiń arttyrudy modeldeu	Esenzholov U. S. Sarsembayev E. A.	No. 33612 Of 15.03.2023
4	Belik G. A. Aldoshina O. V.	Integrated photovoltaic systems on the roof of buildings: an option for providing integrated management	Belik G. A. Aldoshina O. V.	No. 34690 dated 14.04.2023
5	Kaliaskarov N. B.	Development of a structural and functional scheme of a distributed Wi-Fi system monitoring system for bridge structures and construction buildings	Kaliaskarov N. B.	No. 34701 dated 14.04.2023
6	Zhantuganova T. S., Esenzholov U. S., Sarsembayev E. A.	Classification of external factors affecting the reliability of optical cables of telecommunications systems	Zhantuganova T. S., Esenzholov U. S., Sarsembayev E. A.	No. 35698 dated 16.05.2023

5. Academic degrees, titles, election to the Academy of Sciences and there are no awards received by the faculty and staff of the department - *нет*

6. Participation in R & D funding competitions – *no*

7. Results of scientific work under cooperation agreements not with organizations in Kazakhstan - *нет*

8. Results of scientific work within the Corporate University

1) Together with Korfeldisova Gulnar Yerezhepovna (generalist EX Support Service Association "Division" Network "branch of Kazakhtelecom JSC), work is being carried out on the initiative topic of the department "Development of a wireless monitoring system for ecology and construction objects", the result of which will be an article of the same name for placement in journals included in the COXON database.

2) We are working on writing articles and SIS together with Sultan Alikhan Maratuly, a leading engineer of the FOCL Karaganda DESD Association "Division" Network "branch of Kazakhtelecom JSC, and Korfeldisova Gulnar Yerezhepovna Ережеповной EX generalist EX Support Service Association "Division" Network " branch of Kazakhtelecom JSC.

3) Approved the list of elective subjects of the educational program 6B06201 "Radio Engineering, Electronics and Telecommunications" for 2023-2024 academic years; it was decided to jointly develop a thematic plan for the disciplines "Antenna-feeder devices" and " Information Transmission Theory".

4) Hold an offsite meeting of the SAC for the defense of theses/projects of students of the educational program "Radio Engineering, Electronics and Telecommunications" on 13.06.2023 at the head office of the Association "Division" Network " branch of Kazakhtelecom JSC, at the address Ermekova 31, in the conference hall. Appoint as members of the commission from the company:

- Izatova A. T. system engineer of the 1st category of the GTP SPD of the Karaganda DESD Association "Network Division" - a branch of Kazakhtelecom JSC.
- Korfeldisova G. E., EX generalist EX Support Service Association "Division" Network " branch of Kazakhtelecom JSC.
- Rakhmangulov R. Z., mentor Association "Division" Network " branch of Kazakhtelecom JSC.

5) Conducted field practical classes, seminars on the basis of the branch of the TSS department, participated in training sessions, and raised the issue of employment of young specialists.

6) Together with Korfeldisova Gulnar Yerezhepovna (generalist EX Support Service Association "Division" Network "branch of Kazakhtelecom JSC), a textbook "Theory of teletraffics" was written in Kazakh for students of OP 6B06201 "Radio engineering, electronics and telecommunications".

9. Results of scientific work on projects and contracts about international cooperation

1) On March 28, an international cooperation agreement was signed with Koliseum s.r.o. (Prague, Czech Republic). The parties agreed that the following thematic areas will be a priority:

- technologies for the production and use of unmanned aerial vehicles (UAVs);
- automation of production processes.

By agreement of the Parties, the list of priority areas can be supplemented and expanded.

Cooperation includes, but is not limited to, the following forms:

- exchange, joint preparation and publication of teaching materials and scientific literature;
- joint development of technologies for the production of UAVs;
- testing of UAV usage technologies;
- participation in joint commercial projects on partner terms.

2) On April 20, an agreement on international cooperation was signed with the federal State Autonomous Educational institution of Higher Education "Murmansk State Technical University" (Murmansk, Russian Federation).

The parties agreed that the following thematic areas will be a priority:

- technologies for the production and use of unmanned aerial vehicles (UAVs);
- automation of production processes;
- technologies of extraction of natural resources;
- logistics and transport.

Cooperation includes, but is not limited to, the following forms:

- exchange, joint preparation and publication of teaching materials and scientific literature;
- joint development of technologies for the production of UAVs;
- testing of UAV usage technologies;
- exchange of doctoral/postgraduate students, undergraduates and students (hereinafter referred to as students);
- exchange of teachers, researchers and administrative staff (hereinafter referred to as employees) in the form of internships, advanced training and professional retraining, lectures, participation in conferences and other events;
- conducting joint scientific-practical and methodological conferences, seminars and other events;
- participation in joint commercial projects on partner terms.

10. Scientific work with students and undergraduates

4 student circles are organized:

1) Problems of improving transport and communication systems

Supervisor: и. о. Acting Head of the TSS Department, PhD N. PhD B. Kaliaskarov H.Б.

Characteristics of the Research and Development Center: work is underway to develop laboratory and practical works on improving transport and communication systems, as well as to develop reference materials. Training is provided for conducting literature analysis on transport and communication systems.

2) Introduction of high-tech technologies in telecommunications systems, energy and energy saving

Supervisor: art. pRep. Yessenzholov U. S.

NIRS characteristics: A virtual model of a DHCP server in a corporate network based on virtual machines is built; work is underway on calculated data to improve the server's operation principle. The interim results of the research were published as abstracts at the International Scientific and Practical Conference "Integration of Science, Education and Production-the basis for implementing the National Plan" (Sagin Readings No. 14).

3) Improvement of communication technology and systems

Supervisor: art.. pRep. department. SHH Gavrilova M. A.

Характеристика НИРС: R & D characteristics: an experimental network model with dynamic routing distribution of a new generation is being developed, and the intermediate results of R & D are published as abstracts at the International Scientific and Practical Conference "Integration of Science, Education and Production-the basis for implementing the National Plan" (Sagin Readings No. 14).

4) UN7PWA Collective Station

Supervisor: Acting Head of the TSS Department, PhD N. PhD B. Kaliaskarov H.Б.

NIRS characteristics: Work is underway to adjust the radio channel to the frequencies of the collective station of the UN7PWA department and radioequipment. Materials are prepared for research projects with students. материалы для научных проектов со студентами.

Students of the department submitted the following projects for participation in the first stage of the Republican Research Competition студентами кафедры :

1) Wireless current management using Wi-Fi technology-Galimyanov Ildar Railovich (RET 19-2); supervisor-Kaliaskarov N. B.;

2) Study of the interaction of devices inside a wireless Wi-Fi network-Alimov Torehan Kairatovich (RET 19-2); supervisor-Kaliaskarov N. B.;

3) Remote information processing via mobile phone - Bakirov Eldar Valeryevich (RET 21-2); supervisor-Gavrilova M. A.;

4) MATLAB / SIMULINK бағдарламасында компьютерлік модельдеу арқылы сигналды жіберудің сандық жүйесін жобалау - Самыратов Әділ Нұрмұхамедұлы (PЭТ 20-1); руководитель –Калиаскаров Н.Б.;

5) Microwave Office және MATLAB Simulink орталарында компьютерлік модельдеуді қолдана отырып, жіберу функциясының математикалық моделін және негізгі сипаттамаларды құруға арналған сүзгілерді синтездеу - Гарифуллинова Дильназ Нурланқызы (PЭТ 21-1); руководитель –Калиаскаров Н.Б.;

6) MATLAB / SIMULINK бағдарламалық ортасында тасымалдаушы тербелісті қалпына келтіру жүйесін модельдеу - Манатова Ұлпан Русланқызы (PЭТ 21-1); руководитель –Калиаскаров Н.Б.

On 13.04.2023, the department hosted a meeting of the 4th section "Information and Communication technologies" of the Republican Student Scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050". In total, students of the department submitted 19 abstracts to the conference, of which 17 were read out at the breakout session.

Diplomas were awarded to the following students:

1) Aitmukhambet Akmaral, (Research of human authentication methods), RET 22-1, scientific supervisor-senior lecturer of the Department. SHH Yessenzholov U. S.;

2) Bakirov Eldar (Lava lamps, as an option for solving Internet encryption); RET 21-2; scientific. csupervisor of the department. SHH Gavrilova M. A.;

3) Самыратов Әділ (MATLAB/SIMULINK бағдарламасында компьютерлік модельдеу арқылы сигналды жіберудің сандық жүйесі); PЭТ 20-1; науч. рук. – и. о. заведующего кафедрой ТСС Калиаскаров Н.Б.;

4) Zhumataev Dias (Implementations of FACE ID for authentication); RET 22-1, scientific. csupervisor of the Department. SHH Yessenzholov U. S..

Also, by a special decision of the commission, it was decided:

1) отметить доклады Манатовой Ұ. «Matlab / Simulink бағдарламалық ортасында тасымалдаушы тербелісті қалпына келтіру жүйесін модельдеу» и Гарифуллиновой Д «Математикалық модельдеу негіздері», за их актуальность и новизну. Recommend this article for publication in the journal "Proceedings of the University";

2) note the reports of A. Kirichenko "Protection of communication channels" and Болатбековой D. Bolatbekova "Wireless sensor networks: opportunities and current problems", as well as recommend the development of these topics for future research projects.

On May 30, 2023, the final of the competition of scientific projects under the educational program "Radio Engineering, Electronics and Telecommunications", dedicated to the 70th anniversary of Karaganda Technical University named after Abylkas Saginov, was held on the initiative and on the basis of the Department of "Communication Systems Technologies".

A total of 13 projects were submitted by students of the TSS Department.

Among them:

1st place - Zhumataev Dias, Kadenov Yernar, Zhansagym Nurzat, (project: Распознавание Face recognition based on machine learning), КарТУ имени Abylkas Saginov University, FEAT, RET-22-1, scientific. csupervisor of the Department. SHH Yessenzholov U. S.;

3rd place –

1) Bolatbekova Darina Nurlanovna, (project: Wireless charging based on magnetic resonance in the form of a cube), КарТУ имени Abylkas Saginov University, FEAT, RET-22-2, scientific. csupervisor of the Department. SHH Aldoshina O. V.;

2) Zhumataev Dias Askhatovich, Aitmukhambet Akmaral Ardakkyzy, Kargazhanova Toty Daniyarovna, (project: Map of Electronic platformasy (Electronic platform Map)), map named after Abylkas Saginov, FEAT, RET-22-1, scientificdirector. csenior lecturer of the department. SHH Yessenzholov U. S.

Award certificates of appreciation for participation to all participants who have passed through to the final of the competition, namely:

1) Конекова Zhansulu Konekova, (project: Optical neural network and its application in the Data Processing Center), КарТУ имени Abylkas Saginov Map, FEAT, RET-21-2, scientificdirector. csenior lecturer of the department. SHH Gavrilova M. A.

2) Pavlov M. Yu., Korbit A.V., Kalkenov Zh. K. (project: Physical channels of information transmission in quantum cryptographic systems), КарТУ имени Abylkas Saginov University, FEAT, RET-22-2, senior lecturer of – the Department. SHH Aldoshina O. V.;

3) Kobasov Rustam Asetovich, Tolegen Dias Sanatuly, Zeynollin Alikhan Timurovich (project: Artificial intelligence in Education), КарТУ имени Abylkas Saginov University, FEAT, RET-22-2, scientific. csupervisor of the Department. SHH Aldoshina O. V.;

4) Sanaubarov Adil Zhanatovich, Shander Vyacheslav Igorevich, Shevchenko Yevgeniy Yevgenyevich (project: Using NFC technologies in universities), КарТУ имени Abylkas Saginov University, FEAT, RET-22-2, scientific. csupervisor of the Department. SHH Aldoshina O. V.

11. Implementation of the Comprehensive University Development Program for the 1st half of the year
2023 yeara

Indicator of the Comprehensive University Development Program for 2023 years		Planned indicator for 2023 year Planned indicator for 1H2023 year	Actual status	Percentage of completion
Ensure that articles are prepared for publication in scientific journals included in	the Clarivate Analytics databases, at least	2	2	100%
	Scopus, not less	than 6	7	117 %
	COXON, not less	than 7	8	114%
Secure filing of patent applications, not less		than 3	3	100 %
Secure registration of copyright rights (obtaining certificates), not less		than 6	6	100%
Ensure the participation of at least 2 young scientists in the competition for a university grant for research activities		2	3	150 %

12. Analysis of the work of Research groups

The working group of the TSS department on the implementation of the initiative topic "Research of signals and features of their transmission in monitoring systems of construction objects and environmental monitoring" for 2023-2025 includes 32 people, including: 7 people from among teaching staff, 25 people from among students. The following work was carried out in this area in the first half of 2023:

- in the course of the work, laboratory studies and literature, article and patent reviews were carried out, components for creating a test sample were prepared.

- an article was published under the authorship of: Kaliaskarov N. B., Sagyndyk A. B. (Toraigyrov University), Bulatbaev F. N. (ES), Bulatbayeva Yu. F. (APP), Esenzholov U. S.-Development of a structural and functional scheme of a distributed wi-fi monitoring system for bridge structures and construction buildings, Republic of Kazakhstan, Proceedings of the University No. 4, 2022; (0.059 is included in the COXON list);

- based on the research results, twelve articles were sent:

1) Манбетова Ж.Д. (КазАТУ им. С. Сейфуллина), Иманкул М.Н. (Ену им. Л.Н. Гумилева), Дунаев П.А. (КазАТУ им. С. Сейфуллина), Калиаскаров Н.Б. - Қалалық инфрақұрылым ауқымында жарықтандыруды интеллектуалды басқару үшін IoT технологиясын пайдалану; Республика Қазақстан, Труды университета; (0,059 входит в перечень КОКСОН);

2) Kaliaskarov N. B.; Ivel V. P. (SKU named after M. Kozybaev); Gerasimova Yu. V. (SKU named after M. Kozybaev); Razinkin V. P. (NSTU named after K. Marx Ave., Russian Federation); Yugay V. V. (APP) - Remote monitoring of temperature and humidity of premises (objects) based on dual-processor Wi-Fi data transmission system; RF,

Journal of Communications Technology and Electronics (S 25 процентиль);

3) U.S. Yessenzholov; N.B. Kaliaskarov. - Implementation of traffic protection based on ipsec vpn technology and network modeling on ensp software environment; RK, bulletin of the Kazakh Academy of Transport and Communications named after M. Tynyshpayev (0.028 is included in the COXON list);

4) Gavrilova M. A.-Remote information processing by means of a mobile phone; RK, " Bulletin of KazNPU im. Abaya, series "Physical and Mathematical Sciences" (0.086 included in the COXON list);

5) Kaliaskarov N. B., Esenzholov U. S., Kokkoz M. M. (ITB), Baiseitov G. N. (R&D center "Kazakhstan Engineering"), Zhantlesov A. U. (R&D center "Kazakhstan Engineering"), Dolya A.V. (R&D center "Kazakhstan Engineering")- Remote monitoring of the technical condition of military facilities using wireless communication; Ukraine, Eastern-European Journal of Enterprise Technologies (S 40).

- 6) Vadim Carev (Ostrava Technical University, Czech Republic), Jaroslav Zdrálek (Ostrava Technical University, Czech Republic), Sergey Tkachenko (I. Kant BFU, Russian Federation), Arkadii Klimentov (Gubkin Russian State University of Oil and Gas), Alexander Smirnov (Russian State Agrarian University-Moscow Agricultural Academy. A. Timiryazeva, Russian Federation), Nurbol Kaliaskarov-Loop antenna UAV for ionospheric communication; Drones, Switzerland (S 74);
- 7) Vadim Carev (Ostrava Technical University, Czech Republic), Jaroslav Zdrálek (Ostrava Technical University, Czech Republic), Sergey Tkachenko (I. Kant BFU, Russian Federation), Arkadii Klimentov (Gubkin Russian State University of Oil and Gas), Alexander Smirnov (Russian State Agrarian University-Moscow Agricultural Academy. A. Timiryazeva, Russian Federation), Nurbol Kaliaskarov-Loop antenna UAV for ionospheric communication ; eTransportation, Netherlands (WoS Q1);
- 8) Gavrilova M. A., Kaliaskarovnb-Remote information processing via mobile phone; Bulletin of the Karaganda University, RK (Q3);
- 9) Kaliaskarov N. B.; Research and selection of parameters of wireless data transmission systems for remote environmental monitoring stations ; Ukraine, Eastern-EuropeanJournal of Enterprise Technologies (S 40);
- 10) Kaliaskarov N. B.-Development of a structural and functional scheme of a distributed wi-fi monitoring system for bridge structures and construction buildings; RK, Bulletin of the AMES (0.154 is included in the COXON list);
- 11) N. B. Kaliaskarov, G. A. Belik -Development of a distributed wireless wi-fi system for monitoring metrological indicators; RK, " Bulletin of KazNPU im. Abaya, series "Physical and Mathematical Sciences" (0.086 included in the COXON list);
- 12) Kaliaskarov N. B.-Designing a digital data transmission system using computer modeling ; RK, Bulletin of Toraigyrov University (0.131 included in the list of COXON).
- based on the results of scientific activity, participation in the Republican student scientific Conference "Contribution of youth science to the implementation of the Strategy "Kazakhstan-2050", dedicated to the 70th anniversary of the university; as well as participation in the international scientific and practical online conference "Formation of intellectual capital in the conditions of digital transformation: experience, challenges, prospects" was held. 12 abstracts were published.
 - based on the results of scientific activity, one patent application was sent: authors: Galimyanov I. R. (RET 19-2); Aldoshina O. V.; Esenzholov U. S.; Belik G. A.-Current control using Wi-Fi technology (Patent application No. 2831071 dated 14.03.2023).
 - based on the results of scientific activity, one patent was obtained: authors: Belik G. A.; Galimyanov I. R. (RET 19-2); Kaliaskarov N. B.; Sarsembayev E. A.; Esenzholov U. S.-A hidden communication device (Utility model patent No. 8023 dated 28.04.2023).
 - based on the research results, three certificates of state registration of rights to copyright objects were obtained:
 - 1) Gavrilova M. A.; Belik G. A.; Bakirov E. V. (RET 21-2) - Remote information processing by means of a mobile phone (No. 33610 dated 03/15/2023);
 - 2) Есенжолов У.С.; Сарсембаев Е.А.; - MPLS негізінде желі қауіпсіздігін арттыруды модельдеу (№33612 От 15.03.2023);
 - 3) Kaliaskarov N. B.-Development of a structural and functional scheme of a distributed Wi-Fi system monitoring of bridge structures and construction buildings (No. 34701 of 14.04.2023).

13. Other scientific information

Three teachers of the department submitted documents and projects for participation in the competition for a university grant for research activities:

- 1) acting head of the department. TSS Kaliaskarov N. B., topic-Development of a distributed system for remote monitoring of the technical condition of bridge structures and buildings;
- 2) Senior lecturer of the TSS Department, Master's degree M. A. Gavrilova, topic: Selection of parameters of wireless data transmission systems for remote environmental monitoring stations;
- 3) senior lecturer of the TSS Department, Master's degree Shakhmatova A. T., topic-Mathematical modeling of the conductivity of the medium based георадарных on ground-penetrating radar data.

Of the three teachers who participated in the competition for a university grant for research activities in April 2023, two won (funding of 500,000 for each project):

- 1) acting head of the department. TSS Kaliaskarov N. B., topic-Development of a distributed system for remote monitoring of the technical condition of bridge structures and buildings;
- 2) senior lecturer of the TSS Department, Master's degree Shakhmatova A. T., topic-Mathematical modeling of the conductivity of the medium based георадарных on ground-penetrating radar data.

On May 29, 2023, JSC "International University of Information Technologies" hosted the XV Republican Student subject Olympiad in the specialty 5B071900 - "Radio Engineering, Electronics and Telecommunications", where 23 participants from 9 universities of Kazakhstan took part.

The Olympiad was held in an individual format and tasks were presented in the following disciplines: "Theory of electrical communication", "Electronics and circuitry of radio engineering devices", "Theory of electrical circuits". According to the results of performing Olympiad tasks, a student of the RET-19-2 group, Alimov Tturekhan Kairatovich, took the 3rd prize place.

И. Acting Head of the TSS Department _____ Kaliaskarov N. B.

ЗавThe envious nile _____ Gavrilova M. A.