
ISTANBUL GELISIM UNIVERSITY
EST. 2008
ISTANBUL
GELISIM
UNIVERSITY
GELİŞİM ÜNİVERSİTESİ

COMPUTER ENGINEERING

> Computer Engineering is the art and science of engineering where digital wizards craft the future world in a fascinating way through algorithms and circuits.

Assist Prof. Oğuzhan ÖZTAŞ
Head of Computer Engineering Department

İSTANBUL GELİŞİM ÜNİVERSİTESİ
2008

Mühendislik ve Mimarlık Fakültesi

ABOUT US

As one of the prestigious and dynamic departments of Istanbul Gelişim University's Faculty of Engineering and Architecture, the Department of Computer Engineering aims to educate leading engineers in the rapidly evolving world of technology. Established in the 2011–2012 academic year, our department produced its first graduates in 2014–2015 and has been continuously developing ever since.

Our Computer Engineering program offers students an education aligned with global standards through a curriculum fully compatible with the European Credit Transfer and Accumulation System (ECTS). In addition, our department holds ABET accreditation, an internationally recognized mark of excellence that certifies the quality of our education.

Our educational approach combines theoretical knowledge with practical experience. Students benefit from a comprehensive learning environment in modern classrooms and fully equipped computer laboratories, enhancing their knowledge and skills. Through project-based learning opportunities, they can apply theoretical concepts in practice and develop innovative solutions.

At the Istanbul Gelişim University Department of Computer Engineering, we are committed to educating innovative engineers with strong problem-solving abilities who shape the future of technology. By prioritizing quality in education, we open a bright career path for our students. With our strong academic staff and advanced technological resources, we prepare them to become the technological leaders of tomorrow.

OUR MISSION

As the Department of Computer Engineering;

- Aims to add value to our city, society, and humanity,
- Regards education, research, and community service as core responsibilities,
- Trains individuals who are competent and use resources effectively and accountably,
- Unconditionally believes in scientific ethics and academic freedom,
- Embraces a deeply internalized culture of quality and tolerance,
- Strives for continuous development physically, digitally, socially, culturally, and psychologically,
- Is recognized nationally and internationally through innovative and high-tech projects,
- Encourages teamwork and interdisciplinary collaboration,

our foremost priority is to equip our students with the knowledge and skills necessary for building a better, fairer, and more sustainable world.

As a department, equipping our students with the knowledge and skills for a good, just, and sustainable world is our top priority.In line with this mission, we aim to conduct world-class education and research activities in the field of computer engineering and to train leading individuals in this field.

OUR VISION

“To be a department that is accepted and appreciated by national and international academic and industrial organizations with a contemporary and qualified education system, to provide its students with values that will make a difference, to be sensitive to ethical values, to promote teamwork, and to train researchers and innovative computer engineers.”

PROGRAM AND CURRICULUM INFORMATION

Our Computer Engineering program consists of a variety of courses that have been carefully designed to provide our students with a broad range of knowledge and skills. The main components of our program are as follows:

- **38 Required Courses:** Designed to provide students with the essential knowledge and skills in basic engineering and computer sciences.
- **7 Departmental Elective Courses:** Offer an in-depth focus on specialized topics within computer engineering.
- **2 Non-Departmental Elective Courses:** Selected from other departments to enhance students' interdisciplinary knowledge.
- **4 Teaching Pedagogical Formation Courses:** Offered to equip students with fundamental teaching skills.
- **2 Social Elective Courses:** Aimed at broadening students perspectives and knowledge in social and cultural fields.

This program aims to provide our students with a broad range of knowledge and equip them with the essential skills needed to succeed in their careers. With its comprehensive and versatile structure, our Computer Engineering program enhances both the technical and social competencies of our students, helping them become highly qualified and successful professionals in their fields.

PROGRAM EDUCATION OBJECTIVES

According to the mission of the Computer Engineering program, the following program educational objectives represent the career and professional achievements our graduates are expected to attain within a few years of graduation:

1. Acquire disciplined reasoning, critical thinking, and applied skills to identify, analyze, and solve complex problems.
2. Communicate effectively, both orally and in writing, to articulate technical information, ideas, and recommendations.
3. Consider the professional, ethical, and social responsibilities associated with engineering and technology practices.
4. Act effectively, think independently, and work collaboratively in team environments, taking on both membership and leadership roles.
5. Actively engage in professional development, including continuous self-improvement and lifelong learning.

LEARNING OUTCOMES

Program Graduates Gain the Following Knowledge and Skills

1. Ability to identify, analyze, design, model, and solve complex problems using the fundamentals of engineering, science, and mathematics.
2. Ability to apply engineering design to produce solutions that meet specific needs, taking into account global, cultural, social, environmental, and economic factors, as well as public health, safety, and welfare.
3. Ability to communicate effectively with various stakeholders.
4. Recognition of ethical and professional responsibilities in engineering and the ability to make informed decisions considering the impact of engineering solutions on global, economic, environmental, and societal contexts.
5. Ability to work effectively in a team whose members provide co-leadership, create a collaborative and inclusive environment, set goals, plan tasks, and meet objectives.
6. Ability to design and conduct appropriate experiments, analyze and interpret data, and apply engineering principles to draw conclusions.
7. Ability to acquire and apply new knowledge when necessary using appropriate learning strategies.

DEPARTMENT MANAGEMENT

HEAD OF DEPARTMENT

ASSIST PROF.
OĞUZHAN ÖZTAŞ
ooztas@gelisim.edu.t
r

VİCE HEAD OF DEPARTMENT

ASSIST PROF.
TARIK ARABACI
tarabaci@gelisim.edu.tr

ACADEMIC STAFF

Assist Prof. Oğuzhan ÖZTAŞ
-
Image Processing

Assist Prof. Tarık ARABACI
-
Algebra

Prof. Tufan ADIGÜZEL
-
Educational Technologies

Assist Prof. Serkan GÖNEN
-
Cyber Security

Assist Prof. Gökay Burak AKKUŞ
-
Data Science

Assist Prof. Zeinab HASSANZADEH
-
Artificial Intelligence

Assist Prof. Bahadır KOPÇASIZ
-
Algebra

The Department of Computer Engineering, with its expert and experienced academic staff, continuously updates itself and carries out various research projects to provide students with the most up-to-date and comprehensive knowledge.

ACADEMIC STAFF

Assist Prof. Melis ÇAMLIOĞLU - Algebra

Assist Prof. Ümit ALKAN - Physics

Res. Asst. Ahmet Nail TAŞTAN - Cyber Security

Res. Asst. Hasan YILDIRIM - Cyber Security

Res. Asst. Mehmet Ali BARIŞKAN - Cyber Security

Res. Asst. M. Mustafa YURDAKUL - Computer Vision

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ACCREDITATION

ABET (Accreditation Board for Engineering and Technology) is a non-profit organization based in the United States that accredits higher education programs in engineering and technology.

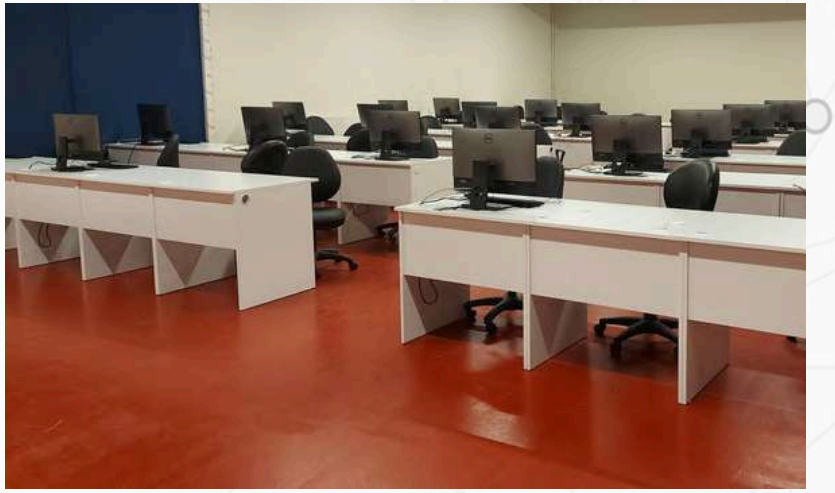
Although there are many organizations around the world that monitor whether higher education programs are conducted in accordance with certain norms in terms of teaching processes and outcomes, ABET stands out as the leading authority in this field, particularly with its approaches and methods for evaluating engineering programs.

It provides assurance that the programs of Istanbul Gelişim University meet the quality standards required for the profession for which they prepare their graduates. The Computer Engineering Department of Istanbul Gelişim University is among the programs accredited by ABET, offering its students an education that meets internationally recognized quality standards.

LABORATORIES

Our students have the opportunity to enhance their knowledge and skills through hands-on practice in programming, informatics, and artificial intelligence. The courses, conducted using modern equipment and up-to-date software, provide our students with a high-quality education tailored to the needs of the industry.

Our faculty has 11 computer laboratories, designed to provide comprehensive training in both hardware and software.



R&D Projects

1

IGUROB: Artificial Intelligence–Powered Humanoid Robot Design

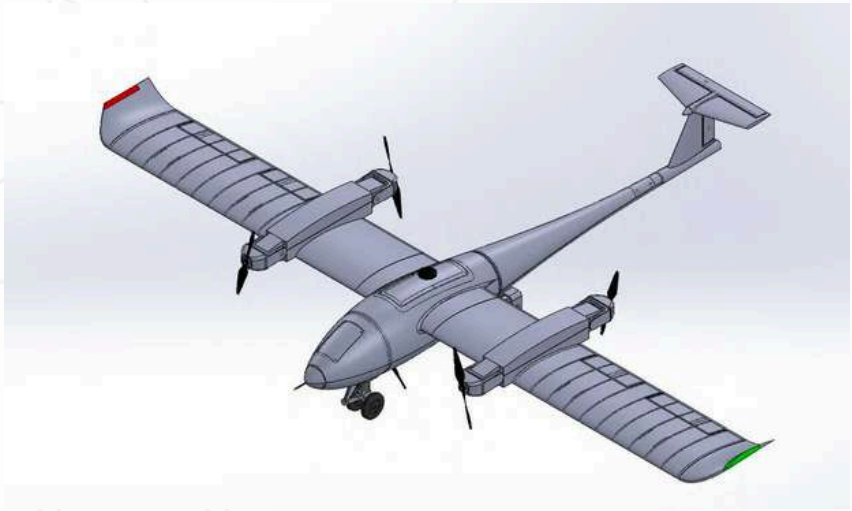
2

A Comprehensive Network Against Brain Cancer

Behavioral Next Generation in Wireless Networks for Cyber Security

R&D Projects

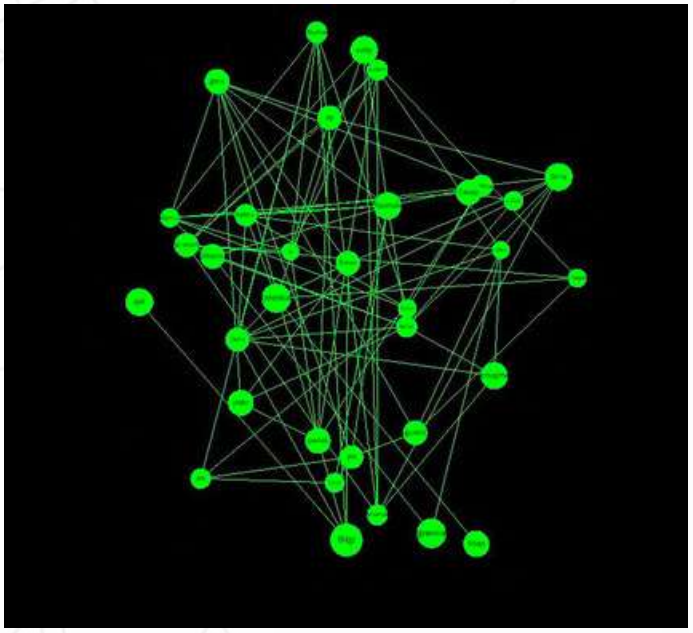
Artificial Intelligence–Powered 3D Mapping

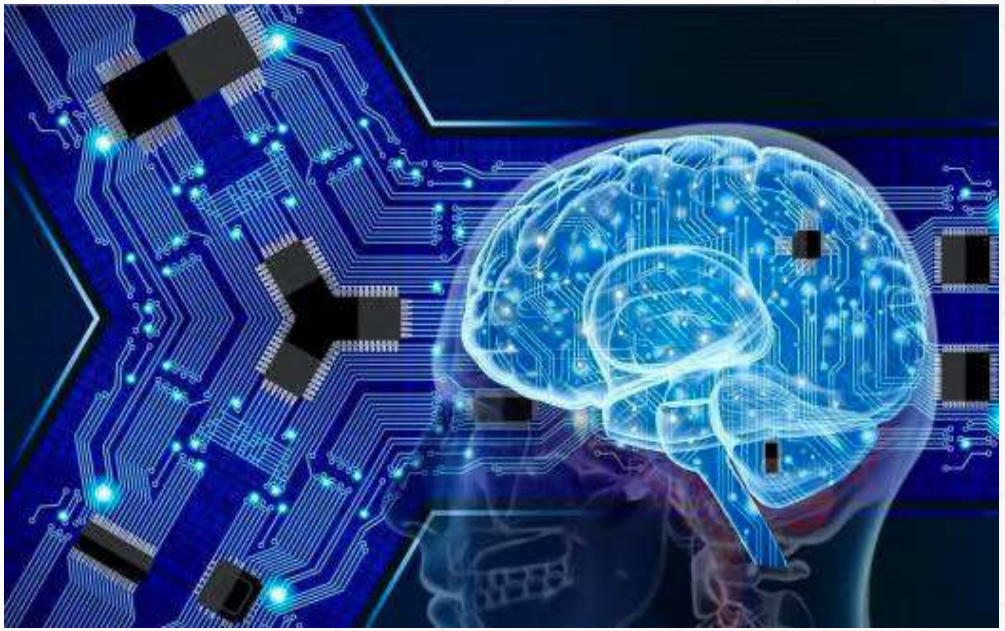


Submitted to Teknofest, the TUSAŞ Hangar, and the AOSB Sabancı R&D Competitions.

R&D Projects

Artificial Intelligence–Based Turkish Language Processing Assistant





A study on mimicking the human brain's listening, comprehension, and speaking functions through model development using artificial neural networks and genetic algorithms.

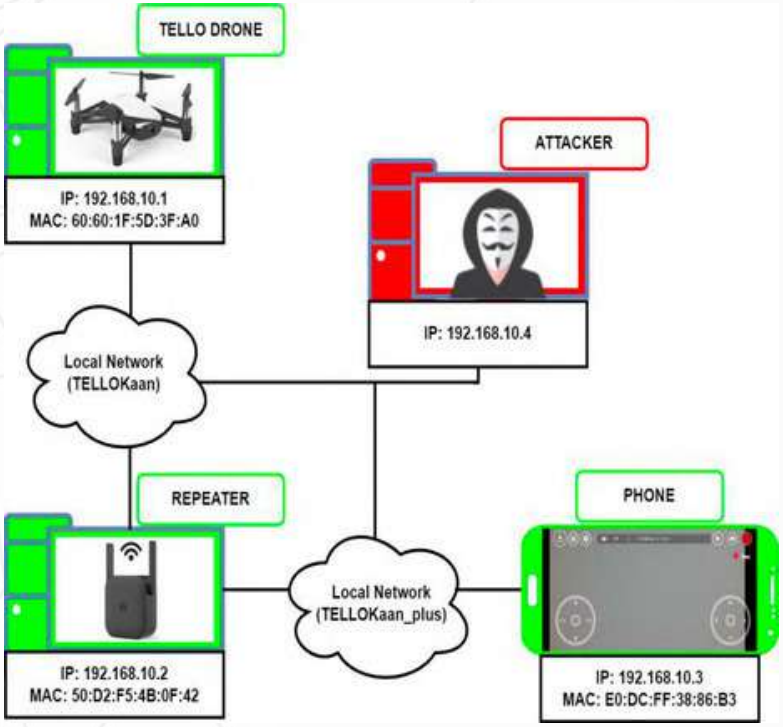
R&D Projects

Artificial Intelligence Application for Agricultural Drones

A study on modeling and mimicking the human brain's listening, comprehension, and speaking functions using artificial neural networks and genetic algorithms.

R&D Projects

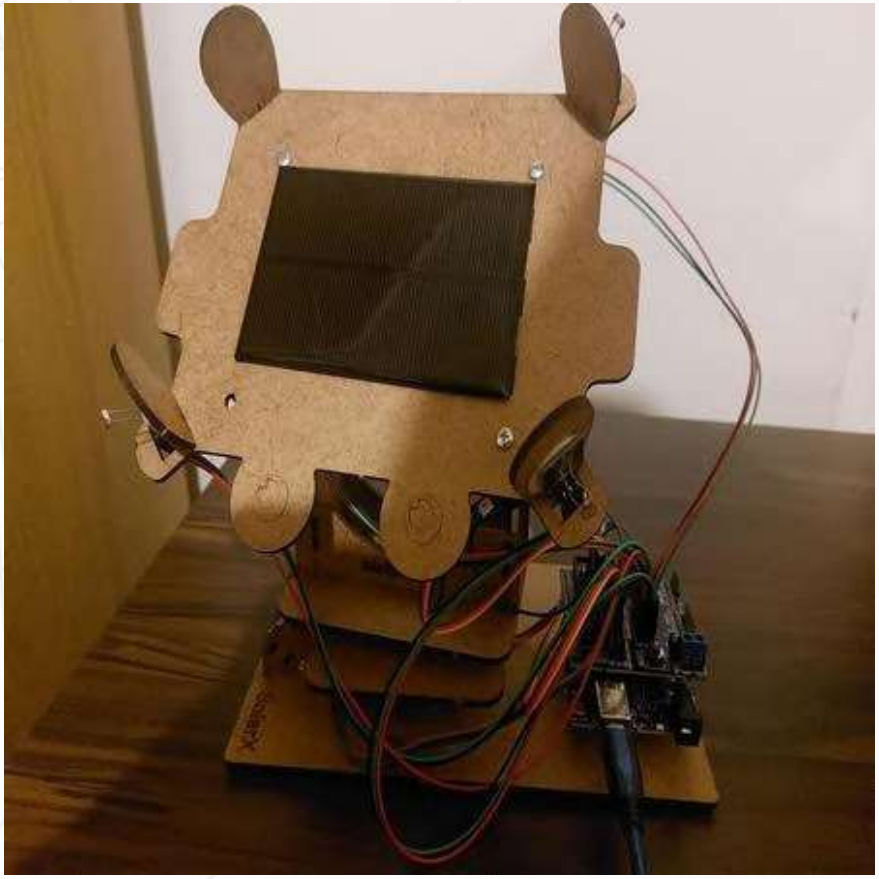
Cyber Drone



Submitted to the TUSAŞ Hangar Innovation Competition. Software development is ongoing.

Graduation Projects

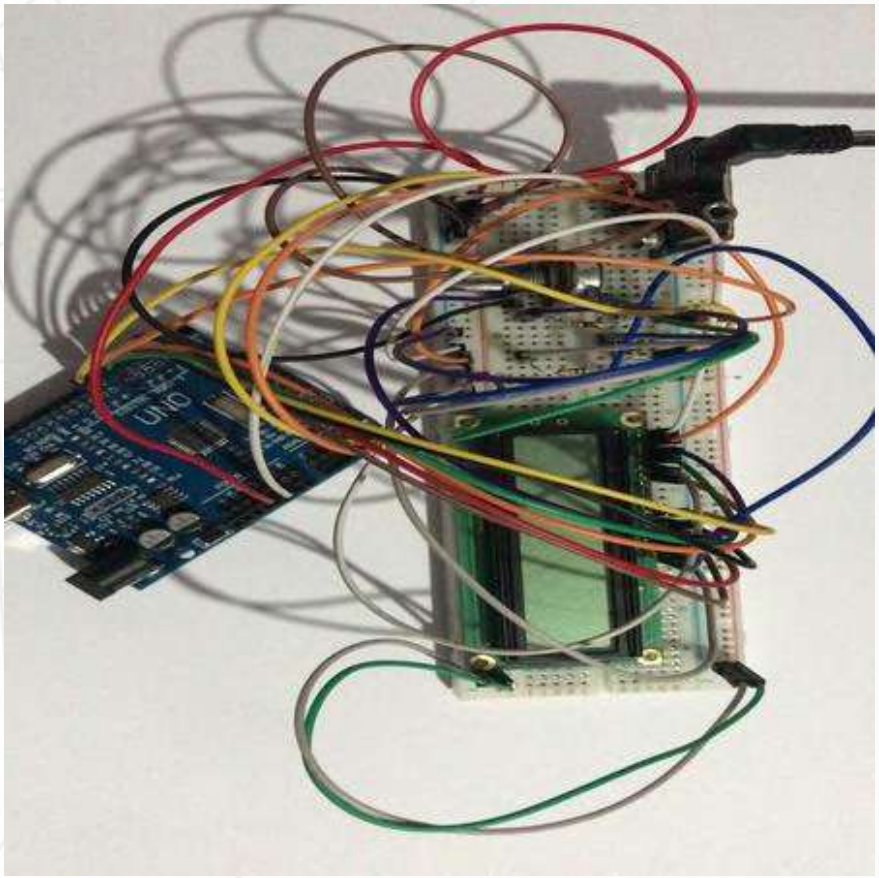
Solar Tracking System



- The Solar Tracking System project is an innovative solution developed to increase the efficiency of solar panels.
- A system has been designed to automatically adjust the position of solar panels to capture sunlight at the maximum level and boost energy production.
- Developed using Arduino and sensors, this system tracks sunlight effectively, maximizing energy generation.

Graduation Projects

FM Radio Development with Arduino



- This project, capable of FM radio broadcasting, aims to create our own broadcast using an FM transmitter circuit and automate the process with artificial intelligence.

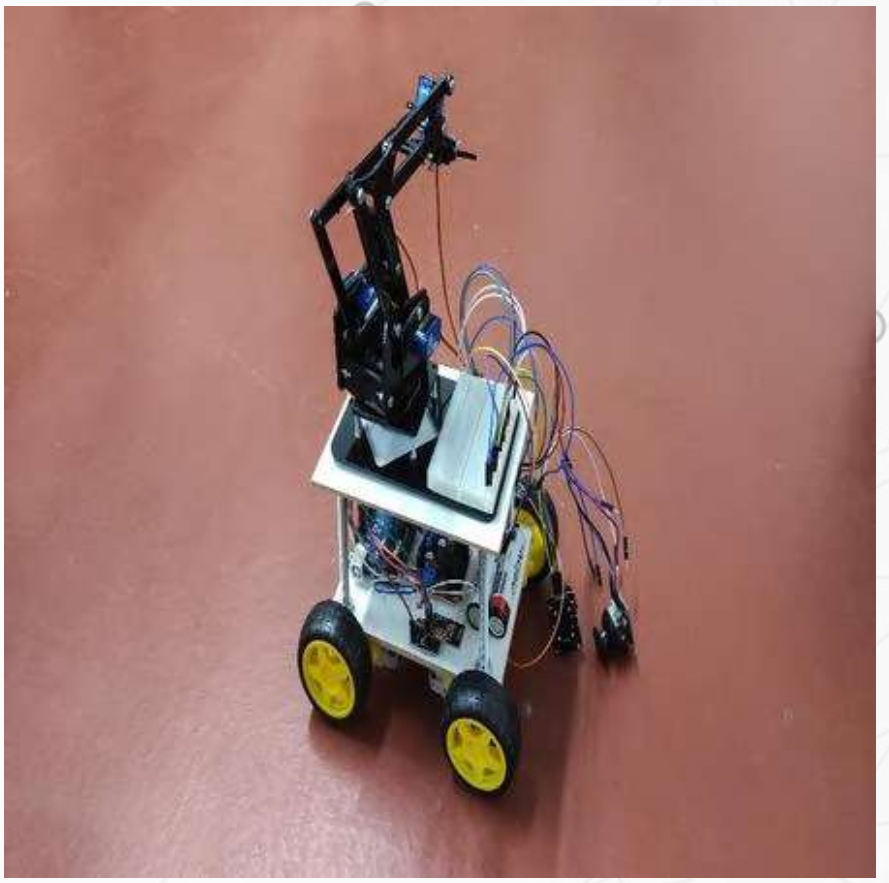
- By using an FM transmitter circuit and a radio receiver, FM broadcasting has been successfully achieved, demonstrating that the project has met its objectives.

Graduation Projects

Robot Arm Mounted on an Acceleration-Controlled Car

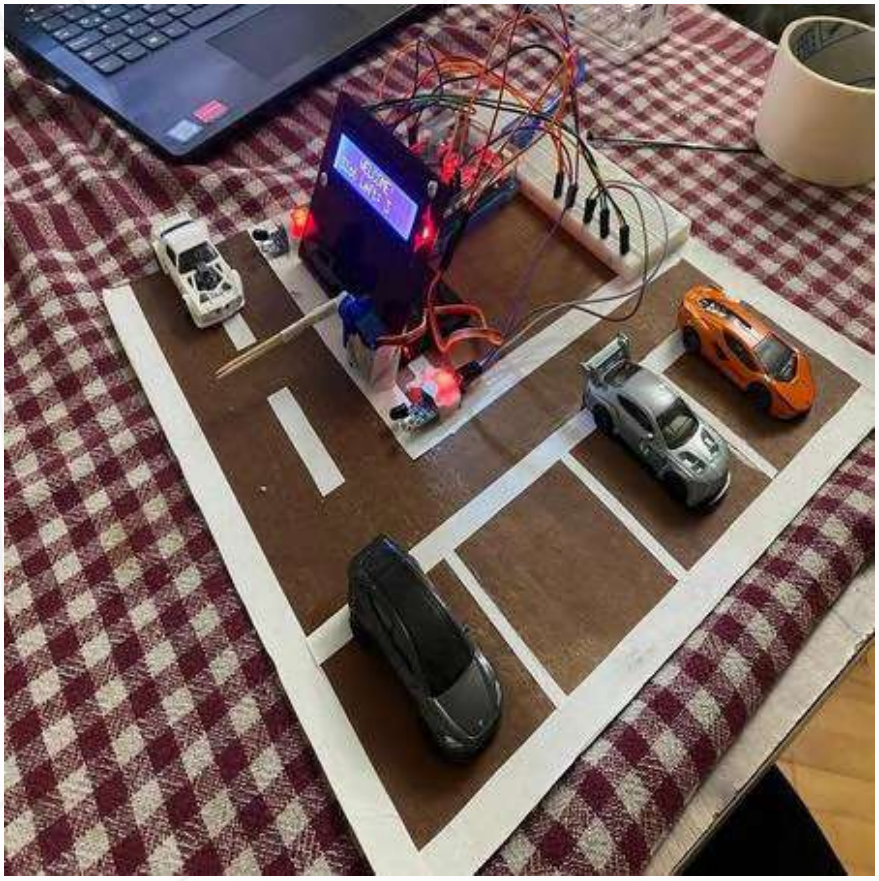
- The Robot Arm Mounted on an Acceleration-Controlled Car project is designed to explore the potential of mobile robotic systems and develop a system capable of performing various manipulation tasks.

- The integration of the acceleration-controlled car and the robotic arm has been successfully accomplished, and different manipulation tasks have been performed effectively.



Graduation Projects

Sensor-Based Parking System



- The Sensor-Based Parking System is designed to automatically control vehicle entries and exits, opening and closing barriers based on occupancy status.

- Developed using Arduino and sensors, this system aims to ensure efficient parking management and reduce urban traffic, providing a safer and more effective parking solution.

ACTIVITIES

IGUCTF'24
IGUCTF'24 was organized as a comprehensive Capture the Flag (CTF) competition, offering various practices in information security and aiming to enhance the skills of its participants.

Hello Kotlin
An event focused on mobile innovation was organized, aiming to teach the fundamental structure of Android programming and enhance application development skills.
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Cloud 101
A series of sessions were held covering topics such as cloud technologies and network integration, virtualization techniques and hypervisor VMs, data processing and storage, and the fundamentals of Google Cloud Platform.

ACTIVITIES

Events Organized by Our Cybersecurity Club

Combating Cyber Harassment and Digital Security

This event aimed to raise awareness about cyber harassment and teach protection methods, enhancing students' understanding of digital security.

English Talks on Cybersecurity

This event aimed to inform participants about types of malware and current cyberattacks while improving their English speaking and listening skills.

ACTIVITIES

Google’s Artificial Intelligence: GEMINI

The Young Developers and Google Developers Student Club organized an event aimed at deepening participants' knowledge of artificial intelligence by introducing the technical features and practical applications of Google’s new AI model, Gemini.

ACTIVITIES

Computer Engineering Students Congress (BİLMÖK)

BİLMÖK, addressing the future of information technologies, was held this year at Istanbul Gelişim University.

Thanks to the two-day congress that brought together computer engineering students and industry professionals, students had the opportunity to share ideas, present projects, and interact with experts in the field of engineering, while enhancing their experiences in new technologies, innovative ideas, and sustainable solutions.

ERASMUS+

Within the scope of Erasmus+, our department has agreements with the following universities.

- Haute École Libre de Bruxelles - Ilya Prigogine, Belgium
- International University of Vision, North Macedonia
- Universitatea Națională de Știință și Tehnologie Politehnica București, Romania
- Technical University of Sofia, Bulgaria
- Todor Kableshkov University of Transport, Bulgaria
- College of Dunaújváros, Hungary
- Bronisław Markiewicz State Higher School of Technology and Economics in Jarosław, Poland
- Radom Academy of Economics, Poland
- University of Beira Interior, Portugal
- Ștefan cel Mare University of Suceava, Romania
- Technical University of Sofia, Bulgaria (listed twice – do you want to keep both?)
- University of American College Skopje, North Macedonia
- Univerzitet Singidunum, Serbia

DOUBLE MAJOR

Double Major

The purpose of the double major program is to enable students who successfully pursue their primary major programs to also study in a second field free of charge and earn an additional diploma. Students with a minimum GPA of 2.72 out of 4.00 in their primary program and who rank within the top 20% of their undergraduate or associate degree program are eligible to enroll in a second major diploma program at no cost.

MINOR

Minor Program

A minor program allows students enrolled in a degree program, who meet the specified requirements, to take a limited number of courses in another degree program within the same higher education institution and receive a certificate (minor certificate) that does not substitute for a diploma. Students can apply to a minor program no earlier than the third and no later than the beginning of the sixth semester of their primary undergraduate program. Only students who have successfully completed all credit courses in their primary program up to the semester in which they apply are eligible.

STAKEHOLDERS

CAREER OPPORTUNITIES

Computer engineering offers broad and dynamic career opportunities in the world of technology. Professionals educated in this field can work in various positions across different sectors.

- Software Development: Software engineers develop computer programs and applications. From major tech companies to startups, many businesses require software developers.
- Data Science: Data scientists analyze large datasets to extract meaningful insights. They use technologies such as machine learning and artificial intelligence to support strategic decision-making.
- Network and System Administration: Network engineers design and maintain computer networks, while system administrators manage IT infrastructure and address security vulnerabilities.
- Cybersecurity: Cybersecurity specialists protect computer systems and networks against threats. They develop security policies and create defense strategies.
- Artificial Intelligence: AI engineers develop algorithms that enable machines to perform human-like tasks. This field includes applications such as automation and natural language processing.

Computer engineering offers an ever-evolving and expanding career spectrum. As technology advances, the demand for computer engineers continues to grow.

WHO SHOULD CHOOSE?

It is important for those considering a career in Computer Engineering to possess certain key qualities:

- Interest in Mathematics and Science: Individuals who are curious and strong in mathematics and natural sciences.
- Problem-Solving Skills: Those who enjoy solving complex problems and possess analytical thinking abilities.
- Openness to Innovation: Individuals who can adapt to the rapid changes in technology and are eager for continuous learning.
- Attention to Detail: Those who work meticulously and pay attention to details.
- Creativity: Creative individuals who can develop new solutions and software.
- Teamwork: Those who are inclined toward teamwork and possess strong communication skills.
- Patience and Perseverance: Individuals who can work patiently and persistently on long-term projects.

People with these qualities are more likely to succeed in the field of computer engineering.

OUR GRADUATES

Examples of Companies Where Our Graduates Are Employed:

- Blockville Digital Assets
- Istanbul Metropolitan Municipality
- Mavinci Information Technologies Inc.
- PayTR Payment and Electronic Money Institution Inc.
- Huawei Technologies
- Yapı Kredi Bank
- Baykar
- QNB Finansbank
- Garanti BBVA Cybersecurity Operations Center
- RSU Information Technologies and Consulting Inc.

Contact Information

Address: Block K, 18th Floor, Room 18-02 No:5, Petrol Ofisi Street, Cihangir Neighborhood, IGU Tower

Phone: +90 (212) 422 7000 Extension: 7380

Fax: +90 (212) 422 7401

For more information, please contact the Head of Department.

E-mail: ooztas@gelisim.edu.tr