GOLDEN JUBILEE
FORTNIGHTLY
ENGINEERING REVIEW
1975 - 2025
The voice of engineers
Regd No. MC 104
Founded by Najam ul Hassan (Marhoom)
Vol. 50 No. 21 | November 1-15-, 2025 | Ph:+92-21-32215961-2
info@engineeringreview.com.pk
www.engineeringreview.com.pk
linkedin.com/company/the-engineering-review

Fifty Years of Engineering Review: A Chronicle of People, Principles, and Progress

By Manzoor Shaikh

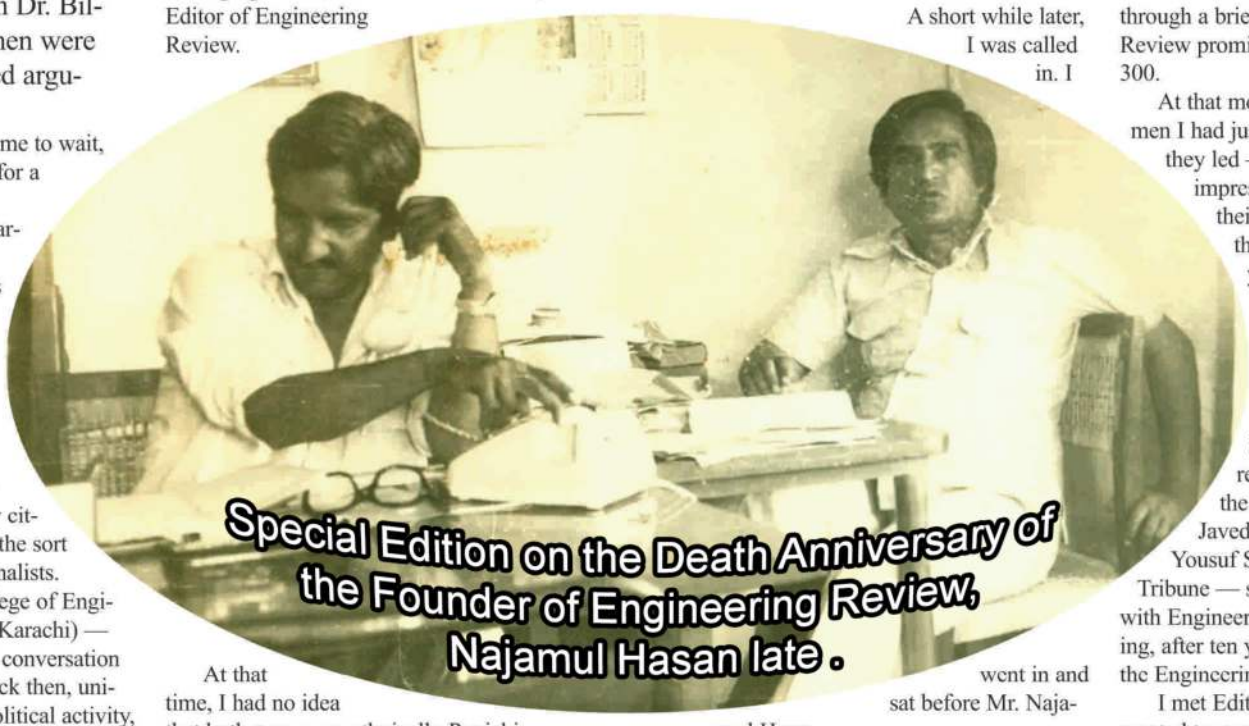
It must have been sometime in the late 1980s. On Chundrigar Road, in an office on Dr. Bilimoria Street, two senior men were deeply engrossed in a heated argument.

The office peon, after asking me to wait, said politely, "Please have a seat for a while."

From where I sat, I could clearly see both of them through the glass partition — and their voices carried well enough for me to hear every word. Waiting, though usually difficult, seemed easier that day because their discussion was about something that fascinated me. They were passionately debating politics — specifically, the rights of ordinary citizens and the underprivileged — the sort of themes usually raised by nationalists.

As a student of Dawood College of Engineering and Technology (DCET, Karachi) — now a university — I found their conversation both familiar and electrifying. Back then, university campuses were hubs of political activity, and such debates struck right at the heart of my own curiosity.

The interesting thing, however, was that the discussion was taking place not in a political party office, but in the office of an engineering magazine — and the two men engaged in that fiery exchange were Mr. Najamul Hasan, the Managing Editor, and Mr. Riazul Hasan, the Editor of Engineering Review.



At that time, I had no idea that both men were ethnically Punjabi. But even more surprising was hearing them advocate for equal development across all regions of Pakistan, transcending provincial identities — something rarely heard back then.

I had originally come there for another purpose altogether. But before I even met them, I realized that my visit had already been worthwhile.

A short while later, I was called in. I went in and sat before Mr. Najamul Hasan.

"Sir, I'm a student at DCET," I began, almost breathlessly. "I've heard that you offer scholarships to bright students — that's why I've come."

"Oh, yes," he replied kindly. "We do try to help where we can. Do you have your marksheet with you?"

After I showed my marksheet and went through a brief personal interview, Engineering Review promised me a monthly stipend of Rs. 300.

At that moment, I had no idea that the two men I had just met — and the organization they led — would leave such a lasting impression on my life. Their values, their seriousness of purpose, and their quiet belief in nurturing young minds would remain etched in my memory forever.

Their true worth — Najamul Hasan and Riazul Hasan — became clear to me about ten years later, when I began working at Engineering Review as a reporter. While I was working at the Daily Barsat, a senior journalist, Javed Rafiq — who worked with Yousuf Shaheen's English paper Sindh Tribune — suggested that I start reporting with Engineering Review. The very next morning, after ten years, I walked once again into the Engineering Review office.

I met Editor Riazul Hasan and told him I wanted to work as a reporter. He handed me a piece of paper and a pencil and asked me to file a story about a railway accident near Sangi

Contd on page 11

CHINT

Empower the World

A GLOBAL LEADING SMART ENERGY SOLUTIONS PROVIDER

Provide a complete energy solution for public institutions, businesses and end-users

Low-voltage Products

NVF2G Series
Inverter

NXB Series
Moulded Case Circuit Breaker

NU6 Series
Surge Arrestor

NH40 Series
Switch Disconnector

NXC Series
AC Contactor

NXA Series
Air Circuit Breaker

NXZ Series
Automatic Transfer
Switching Equipment

NXM Series
Moulded Case Circuit Breaker

Meters

CHS120
Single Phase Smart Meter

CHS320
Three Phase Smart Meter

DDSU666/DT(S)SU666
Smart Electricity Meter

PA/PZ/PD666
Three Phase Digital
Multi-function Meter

EV Charger

AC Charger

Fast DC Charger
Rating 150/180kW Dual Plug

Ring Main Unit

NG7-12

Busway

NCM3

Vacuum Circuit Breakers

NV2-12
Indoor Type
Vacuum Circuit Breaker

NXV-17.5
Indoor AC High Voltage
Vacuum Circuit Breaker

Scan the QR Code to find out more about CHINT Global and our Smart Energy Solutions

AUTHORIZED DISTRIBUTORS | LOW-VOLTAGE

Ameejee Valleehee & Sons (Pvt.) Ltd. (AVS)
Tel: +92 21 32625492 5

Diwan International (Pvt.) Ltd. (Diwan)
Tel: +92 021 111 333 926

HL Pakistan Pvt. Ltd. (HL)
Tel: +92 0311 1617777

The Imperial Electric Company (Pvt.) Ltd. (IEC)
Tel: +92 042 36304861 5

@CHINTGroupAsiaPacific

@CHINTElectric

@CHINTGroup

Empower the World with us at **www.CHINTGlobal.com**

FORTNIGHTLY
ENGINEERING REVIEW
GOLDEN JUBILEE
ENGINEERING REVIEW 1975 - 2025
The voice of engineers

Engineering Review: Fifty Years of Commitment to Innovation and Excellence

Engineering Review (ER) began its journey in 1975 as a modest publication, focusing on the three foundational branches of engineering: civil, electrical, and mechanical. At that time, its vision was simple yet ambitious – to provide engineers with a platform where knowledge, innovation, and practical solutions could converge.

What started as a magazine catering to a small professional audience has, over five decades, grown into a beacon of engineering insight, shaping the discourse on technology, industry, and education across Pakistan.

In its early years, ER concentrated on the core principles of engineering, highlighting major projects, industry developments, and technological advancements in the civil, electrical, and mechanical sectors. Its articles emphasized practical knowledge, case studies, and reviews of projects that set benchmarks for aspiring engineers.

This focus on foundational disciplines laid a strong base for the magazine's credibility and influence, drawing the attention of professionals, academia, and policymakers alike.

As time progressed, ER began to broaden its scope, encompassing emerging technologies and interdisciplinary fields that were gradually becoming essential to modern engineering. Electronics, computer science, automation, renewable energy, and telecommunications found space in its pages, reflecting the global evolution of engineering practices.

In the last fifty years, the magazine has not only chronicled the growth of these technologies but has also actively engaged in discussions about their practical applications, policy implications, and potential to transform industries.

ER's commitment to covering all institutions involved in engineering and industry in Pakistan has made it a vital reference point. Universities, technical institutes, and research centers now feature regularly, highlighting achievements in areas such as biomedical engineering, advanced manufacturing, robotics, and material sciences.

The magazine has become a platform where academic research meets industrial application, bridg-

Contd on page 4

Fifty Years of Commitment to Innovation and Excellence

Contd from page 3

ing the gap between innovation and practical implementation. By reviewing policies concerning local manufacturing and the development of engineering goods, ER has consistently advocated for technological self-reliance and sustainable growth in Pakistan.

The magazine's influence extends beyond the borders of academia and industry. Over the years, ER has established a presence at national and international conferences, exhibitions, and symposiums, representing Pakistan's engineering community. From trade fairs to scientific conventions, ER's team engages with innovators, policymakers, and industry leaders, sharing insights and fostering collaboration. Its participation has not only showcased Pakistan's engineering capabilities but has also positioned ER as a respected voice in national engineering discussions.

The transformation of ER from a print magazine into a modern, digital platform has further amplified its impact. Alongside its fifty years of print publication, ER now boasts a vibrant online presence. Its website serves as a hub for articles, research updates, industry news, and educational content, while social media channels—including YouTube, Facebook, and Instagram—connect thousands of engineers, institutions, and industry professionals. The Pakistan Engineering Council, along with numerous universities and companies, actively engages with ER's digital platforms, reflecting the magazine's role as a central node in the country's engineering ecosystem.

Through these channels, ER has created a dynamic, interactive space for discussion, collaboration, and knowledge sharing. Engineers across Pakistan can access the latest research, technological trends, and policy developments with ease. Students and young professionals benefit from tutorials, webinars, and feature articles that inspire innovation and encourage critical thinking. Meanwhile, industry leaders gain insights into emerging technologies, manufacturing policies, and market trends, allowing them to make informed strategic decisions.

As ER celebrates its fifty-year milestone, it is clear that its journey is defined by more than just longevity. It is a story of vision, persistence, and adaptability. From a modest magazine focused on civil, electrical, and mechanical engineering, it has grown into a comprehensive chronicle of technological progress, a platform for discourse, and a catalyst for innovation. Its pages reflect not only the evolution of engineering in Pakistan but also the aspirations and achievements of generations of engineers who have contributed to the nation's development.

In 2025, Engineering Review stands as a testament to the power of commitment, vision, and the relentless pursuit of excellence. It continues to inspire, inform, and connect engineers, bridging the gap between tradition and innovation, and ensuring that Pakistan remains a vibrant contributor to global technological advancement. ■

– ER Team

Bijli Ghar

Engineering Bazar

EFP Skills Development Employers Recognition Awards 2025

Pakistan Cables Limited Wins Diamond Award

Pakistan Cables Limited has been honored with the Diamond Award at the 3rd Employers' Federation of Pakistan Skills Development Employers' Recognition Awards 2025, in recognition of the company's leadership in On-the-Job Training and Industry–Academia Linkages.

The award was presented by Mr. Sanjeewa Pattiwila, Consul General of Sri Lanka, and received on behalf of Pakistan Cables by Mr. Imran Ghani Mirza, General Manager Industrial Relations.

This honor specifically recognizes Pakistan Cables' structured approach towards employability through three flagship initiatives: ASCEND — the company's women-in-STEM program that provides internships and industry exposure for female engineering students; the Management Trainee (MTO) Program — a talent pipeline that develops fresh graduates through rotational on-the-job training and mentorship; and PurAzm — an inclusive internship track designed for differently-abled individuals to gain meaningful workplace experience and transition into professional careers.

About Pakistan Cables Ltd.

Founded in 1953, Pakistan Cables is the premier and most reputable wires and cables manufacturer in Pakistan. Being the only wires and cables manufacturer listed on the PSX since 1955, it has the largest geographical footprint in Pakistan with a presence in over 200 cities. It is also a member company of the Amir S. Chinoy Group.

Pakistan Cables is ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018 certified, with various cables type-tested by KEMA, Netherlands. The company's science-based emission reduction targets are validated and approved by the Science Based Targets initiative (SBTi). It is also a signatory of the UN Global Compact and committed to achieving net-zero emissions. - PR ■

The Imperial Electric Company Hosts Chint Products Seminar in Karachi

The Imperial Electric Company (Pvt.) Ltd. successfully organized a Chint Low Voltage Products Seminar in Karachi, bringing together a diverse audience of consultants, contractors, panel builders, retailers, solar companies, and other industry professionals.

The event showcased Chint Electric's latest innovations in low-voltage electrical distribution, control, and protection systems—engineered for superior reliability, safety, and efficiency in industrial, commercial, and renewable energy applications. Technical experts from Chint Electric conducted in-depth presentations and live demonstrations, offering valuable insights into the performance and application of their advanced product range.

Sajid Jamil, Executive Director of IEC, welcomed the participants and shared an overview of the company's rich history, business strengths, and long-standing partnership with Chint Electric. He reaffirmed IEC's commitment to delivering high-quality, energy-efficient, and globally trusted electrical solutions across Pakistan.

Ejaz Ashraf, Deputy General Manager of IEC, also addressed the audience, emphasizing the company's nationwide presence, customer-centric approach, and dedication to providing reliable after-sales and technical support to clients and partners.

Kamran Saleem Paracha, Country Manager Pakistan – Chint Electric, discussed Chint's vision to expand its footprint in Pakistan through continuous innovation, product development, and close collaboration with local industry stakeholders. He highlighted Chint's commitment to supporting Pakistan's growing infrastructure and renewable energy sectors.

Speaking to Engineering Review, Javed Masood, Regional Sales Manager – South, remarked that Karachi is the largest market in Pakistan and that IEC is "fully charged and ready" to serve it. He added that IEC maintains ample stock of Chint products to meet growing customer demand.

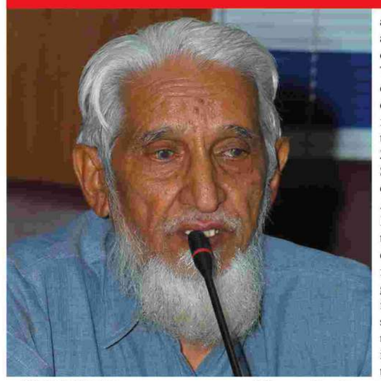
The seminar concluded with lucky draws and a dinner reception, providing an excellent networking opportunity for participants to exchange ideas and explore future collaborations in the power and automation industry.

About The Imperial Electric Company (Pvt.) Ltd.:

The Imperial Electric Company (Pvt.) Ltd. is one of Pakistan's leading distributors of electrical and automation products, representing globally renowned brands including Chint Electric. Serving consultants, panel builders, contractors, retailers, and solar companies nationwide, IEC provides comprehensive electrical solutions for industrial, commercial, and residential applications. The company continues to drive innovation, reliability, and energy efficiency across Pakistan's electrical sector.■

Against All Odds: How Determination and Integrity Built a Lasting Legacy

By Najmul Hasan (Late)



The Beginning

The day I received the permission to publish Engineering Review was a day of immense joy for me. With that permission, I had 90 days to release the first issue of Engineering Review. During this period, Mr. Raza Khattak was appointed as the editor.

These were the days of Zulfiqar Ali Bhutto's reign. Many industries had been nationalized, and industrialists were intimidated. Workers had turned against mill owners. Seths were being humiliated, surrounded, and sometimes assaulted on a daily basis. The extremity of the situation can be gauged from the fact that Mr. Zameer Sheikh, the owner of Ahmed Food Industries, was thrown into the cauldrons used for opening ghee for making sweets. In such an environment, starting new industries was out of the question. To protect their wealth, Seths began investing in residential flats instead. These flats were sold to ordinary citizens. On one hand, this partially fulfilled the slogan of "bread, cloth, and shelter," and on the other, there was no fear of nationalization since these flats were owned by the common and middle class. By that time, the construction of flats was widespread across Karachi.

In this context, my understanding of "engineering" was limited to the construction of houses and flats. I initially thought that Engineering Review would be a magazine about construction activities. But right from the start, it took a different direction. This shift happened when, in search of news, Mr. Raza Khattak visited the WAPDA office at Hub Dam. The first news in the second issue (November 1975) was: "Hub Dam Completion: Delay Imminent"

Thus, Engineering Review moved beyond houses and flats and entered the realm of real engineering. Now, we became a representative newspaper for the three major branches of engineering: Civil, Electrical, and Mechanical. Other branches got comparatively less space.

Early Years and Struggles

The first four to five years of Engineering Review were extremely challenging and required immense patience. I was the owner, the office boy, the manager, and the clerk all in one. Every morning, I had to open the office, sweep, and clean. During those days, when anyone asked me about my role in Engineering Review, I would say I was the "Chief Servant" of the institution.

The office boy of a neighboring Ruby Rice Mills advised me that the office should not remain closed when I went out (which happened often). He apparently arranged a clerk for me. A few months later, my father also began coming to the office for half a day to handle correspondence on my behalf.

Engineering Review started with a modest capital of Rs. 18,000, which even in 1975 was a very small amount, and it was depleted within a few months. Advertisers rarely paid on time. Sometimes I borrowed money from my father, siblings, or friends to keep things running. The lack of resources was so severe that not only did I often get physically exhausted, but I would also sit alone and cry. I thought my wife was unaware of my tears.

But my wife understood my struggles well through the deteriorating condition of our household. While cooking lentils, vegetables, or a large piece of meat at home, we usually ate smaller portions during my employment days. Now, this had become rare. Buying clothes and other essentials had stopped. Buying large cuts of meat was also a burden. In these circumstances, a butcher suggested that I buy the neck cut of buffalo or cow meat, which was cheaper than other meat and also tasty. This experiment turned out well.

One day, my wife gently suggested that I should close Engineering Review and take a regular job, which would provide a steady income and ease our household worries. I replied that this was no longer possible. I had taken loans that could only be repaid from the magazine's revenue, which, God willing, would improve soon.

The Labor of Love

To prepare Engineering Review for mailing, I had entrusted the task of wrapping the copies in paper bands, pasting tickets, and attaching addresses to my father, my younger sister Tayyaba, and other family members. It was, in truth, a labor of love — a family partnership not bound by wages, but by affection and shared pride.

Because of that love, their "payment" was never made — and never demanded.

Among the salaried staff, our editor earned 400 rupees per month, while our clerk received 150 rupees. Somehow, I always managed to pay their salaries by the fifth of every month — no matter how difficult the circumstances.

As for my own salary — also 400 rupees — it was a different story. I often had to pay it to myself in two or four installments, depending on how much money was available.

Don't Try to Sell the Magazine

It was on the advice of my boss — and the owner of Medical News — Mr. Ayaz Mahmood, that I first decided to launch an engineering magazine. One day, he gave me a piece of advice that sounded quite strange at the time. He said: "Don't try to sell your magazine. If you do, it will soon shut down."

Had I not worked at Medical News, I might never have understood what he meant.

At Medical News, we used to distribute about 5,000 to 6,000 copies free of cost every fortnight. The idea behind this "free distribution" was simple yet brilliant — a larger circulation made it far easier to attract advertisers.

When I started Engineering Review, I initially set the circulation at 4,000 copies. It didn't take long for me to realize that selling even that number was nearly impossible.

And without good circulation, advertising revenue — the lifeblood of any magazine — simply couldn't flow.

I Have No Right to Publish an Engineering Magazine

Once it was decided that Engineering Review would be distributed free of cost, the next logical step was to obtain the membership list of the Institution of Engineers, Pakistan (IEP) — so the magazine could reach the right audience.

On the surface, this seemed simple enough — but it turned out to be anything but easy.

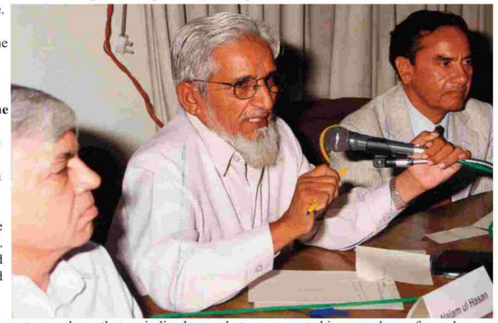
The IEP Karachi Centre believed that a person who was not an engineer had no right to publish a magazine on engineering. My explanation — that journalism and engineering were two entirely different professions — did little to change their minds.

In their view, I was interfering unnecessarily in a field to which I did not belong. Therefore, they flatly refused to share their members' list with me.

Since the "straight road" led nowhere, I had to find another way. Fortunately, among the honorary editors I had appointed from different engineering disciplines was Mr. Wali Jan, who managed to obtain the IEP Karachi members' list for me.

Later, in Lahore, I met Engineer Rab Nawaz Batra, who was then perhaps the Central Secretary of the Institution. He received me with exceptional warmth and generosity — not only did he provide me with the list of members, but he also encouraged my initiative to launch a magazine devoted to engineering.

That day, I truly realized the difference between large-heartedness and narrow-mindedness — and how one gesture of generosity can open doors that prejudice keeps shut.



The Struggles of Composing

Today, in 2012, composing text for English and Urdu magazines or books is no longer a challenge. Large and small publications alike handle the entire process through computers — clean, quick, and efficient.

But in the 1970s, things were very different.

Back then, composing was a nightmare. A major portion of my time was consumed by arranging for Engineering Review to be composed and by getting Urdu text calligraphed manually.

In those days, major English newspapers and large printing presses used the Hot Metal Composing method. Smaller and medium-sized presses relied on hand setting — placing each letter individually into its proper place, line by line, word by word. It was painfully slow and laborious work.

Many authors' books and publishers' magazines never made it to print simply because composing or calligraphy couldn't be completed on time. Dreams remained dreams — never crossing over into reality.

The English daily The Sun was the first newspaper in Pakistan to adopt a computerized electronic composing system. The setup operated swiftly inside a small air-conditioned room, whereas the old hot-metal machines required large spaces. Each machine had its own furnace for melting lead and casting letters — turning the composing area into something of a furnace itself, where workers toiled in sweltering heat.

I had once been part of The Sun's first sales team, and as a former employee, I had good relations with its publisher, Mr. M. Parvez. He agreed that the news stories and articles I submitted would be composed and handed back to me the very next day.

But that promise was never fulfilled.

Eventually, I began spending nights at The Sun's office, hoping that my presence might ensure at least some progress on my material. Yet, even that didn't work. Later, I was told that my composing would be done before the newspaper's daily work began — which sounded reasonable.

But that hope, too, turned to dust.

The Blessing of Karamatullah

After the failure with The Sun, I tried having Engineering Review composed at many small and large printing presses. The process was so frustrating that I even considered producing the magazine on a typewriter. But that plan, too, failed.

One day, we met Mr. Karamatullah of Karamat Time Press, Mahmoodabad. And true to his name, he performed a miracle.

Suddenly, the monthly Engineering Review, which had previously been delayed by four or six weeks at a time, started coming out on schedule. Our editor, Riaz-ul-Hassan, began feeling somewhat redundant.

Under these new circumstances, in February 1980, Engineering Review was transformed into a fortnightly publication. This marked our entry into the modern era of composing. Soon, the composing work began to take place in our own office. One chapter of struggle had finally ended. Ah, what a chapter it had been!

Our license for Engineering Review also included provision for Urdu content. A staff member from the daily Huriat would prepare our material on time. But just like English composing, Urdu calligraphy was also a major headache. Many books never even reached the printing stage due to the meddling of scribes.

When Urdu, too, began to be composed on computers, the number of books reaching the market increased significantly.■

Agriculture Review

Pakistan Awaits GMO Approvals as Canada, Pakistan Deepen Agricultural Cooperation

Federal Minister for National Food Security and Research, Rana Tanveer Hussain, met with the Canadian High Commissioner to Pakistan, H.E. Tarik Ali Khan, to discuss expanding bilateral cooperation in agriculture, food safety, and technology transfer.

Both sides reaffirmed their commitment to strengthening agricultural trade and building a mutually beneficial partnership.

Minister Hussain emphasized that Pakistan and Canada share long-standing relations based on mutual respect and development cooperation, noting that agriculture remains a vital area of collaboration. He highlighted Pakistan's growing food market and potential for agri-industrial development, with a population exceeding 250 million offering vast opportunities for Canadian exports and joint ventures in agri-technology, processing, and value addition.

The Minister stated that Pakistan is actively working to diversify edible oil imports, reducing its heavy reliance on palm oil—valued at over USD 4 billion annually—and shifting towards canola and soybean oils, which are healthier and more sustainable. He added that domestic canola cultivation is being encouraged to boost farmer incomes, substitute imports, and promote local processing industries, with government support in technology transfer and market facilitation.

On trade facilitation, Minister Hussain informed the High Commissioner that the Ministry of Climate Change has approved 43 GMO events, and the final notification is under process. Once issued, this will enable clearance for GMO canola imports from Canada. He assured that all measures are aligned with international biosafety and food safety standards. Appreciating Canada's offer to host a Pakistani delegation to visit Canadian laboratories and inspection facilities, he said such collaboration would build mutual trust and pave the way for lifting the current moratorium on GMO canola imports.

The Minister also proposed enhanced cooperation in hybrid seed development, livestock breeding, embryo transfer technology, and feed formulation. He expressed interest in joint ventures for agricultural machinery manufacturing, noting that Canadian expertise could help modernize Pakistan's farming infrastructure. Furthermore, he sought Canada's technical support in finalizing Pakistan's BSE negligible risk dossier and Foot-and-Mouth Disease (FMD) control program, which would open doors to high-value global meat markets.

He appreciated the ongoing coordination with the Canadian Food Inspection Agency (CFIA) on veterinary health certification and the export of live animals, day-old chicks, and hatching eggs. He emphasized the importance of CFIA certification for expanding Pakistan's exports of halal gelatin, sheep casings, and processed chicken, reaffirming Pakistan's commitment to supplying safe and high-quality halal food products.

High Commissioner Tarik Ali Khan praised Pakistan's growing agricultural potential and efforts to promote sustainable farming and food security. He said Canada values its partnership with Pakistan and sees strong prospects for expanding trade, particularly in oilseeds, pulses, cereals, and edible oils. He reaffirmed that Canada maintains world-class biosafety standards and expressed confidence that closer regulatory cooperation will facilitate the resumption of GMO canola imports.

The High Commissioner invited Pakistan to participate in the 19th Annual Canadian Summit on Food Safety (April 8–9, 2026) and confirmed a Canadian delegation's participation in the Pakistan Edible Oil and Seed Exporters Conference in January 2026. He also shared Canada's success in food processing—particularly in French fries, frozen vegetables, and value-added products—and offered to share Canadian technology and expertise to strengthen Pakistan's agro-industrial sector.

Concluding the meeting, Minister Rana Tanveer Hussain welcomed Canada's proposals and suggested forming a Joint Working Group (JWG) to follow up on certification, market access, and technical cooperation. He reaffirmed Pakistan's determination to expand agricultural trade with Canada, focusing on technology transfer, food safety, and sustainable resource management.

Both sides agreed to maintain close coordination through regular consultations and exchange of delegations to further deepen agricultural and economic ties between the two friendly nations. – PID/ERMD

Erasmus Days Celebration at MUET, Jamshoro!

Team EU-funded projects ACTIVE, CATCH_VR, and BIOMED5.0 proudly celebrated Erasmus Days at the ICT Climate Centre Lab, Mehran University of Engineering & Technology (MUET), showcasing the enduring spirit of international collaboration, academic mobility, and innovation under the Erasmus+ Programme.

Prof. Dr. B. S. Chowdhry paid a heartfelt tribute to Erasmus for its role in empowering students, researchers, and universities worldwide through global learning and research opportunities. Engr. Zakir Shaikh appreciated the dedicated efforts of the Dissemination Team at NCRAAI Lab for organizing this vibrant and meaningful event.

The celebration was graced by Prof. Dr. Abdul Qadir Ansari (Coordinator, BIOMED5.0), Prof. Dr. Ahsan A. Ursani, Dr. Syed Amjad Ali, Engr. Saleem Memon, Dr. Yasmeen, along with faculty members and enthusiastic researchers — all united by the Erasmus spirit of knowledge without borders.

Erasmus+ continues to connect knowledge, cultures, and people — shaping a brighter, more inclusive academic future for all!■

CATCH_VR Hosts Awareness Session on STEAM and Low-Cost AR/VR Learning

An engaging awareness session on "The Importance of STEAM-Based Education and Training with Low-Cost Digital Twin AR/VR Tools for College Education" was held at Government Boys Higher Secondary School (GBHSS) Muhammad Bux Shoro, Qasimabad, Hyderabad, under the EU co-funded CATCH_VR Project.

The session, led by Anza Arain, Volunteering Ambassador of CATCH_VR, aimed to introduce students to the integration of Science, Technology, Engineering, Arts, and Mathematics (STEAM) with emerging digital tools such as Digital Twins (DT), Augmented Reality (AR), and Virtual Reality (VR). The event emphasized how low-cost AR/VR-enabled DT tools can make education more interactive, inclusive, and aligned with the needs of modern learning environments.

Speakers Anza, Alisha, and Zameer delivered insightful presentations on STEAM education and immersive technologies, explaining how they can transform conventional classrooms into experiential learning spaces. Meanwhile, Shahid and Ramsha conducted interactive demonstrations titled "STEAM in Action", engaging students through practical activities such as Science Fun, Tech Skills, Engineer Mind, and Math Magic—fostering creativity and critical thinking.

Continuing the program, Hasnain, Bisma, and Kashmala discussed the "Impacts of Change", illustrating how technology-driven education cultivates innovative and adaptable mindsets essential for the future of Industry 4.0 and 5.0. The session concluded with Nadia, Iram, and Laiba, who shared real-life examples of AR/VR and Digital Twin applications across industries—bridging classroom concepts with real-world implementations.

The Principal of GBHSS, Mr. Dildar Ali Channar, appreciated the efforts of the Mehran University Volunteering Team, supported by the CATCH_VR Project, for selecting their institution for this informative session. He lauded the team's initiative to inspire students toward innovation and digital transformation.

Prof. Dr. B. S. Chowdhry, Lead Coordinator of the EU-funded CATCH_VR Project, commended the volunteering students for their dedication and efforts. He remarked that such initiatives encourage young learners to think beyond traditional boundaries and embrace innovation-driven education. The session reflected the CATCH_VR Project's mission to promote low-cost immersive learning solutions and prepare students for a digitally empowered future.■

Leveraging Technology for Scalable Sustainable Solutions

Engr. Dr. Muhammad Nawaz Iqbal

Technology's involvement in sustainability efforts has now moved beyond a supportive role to become a cause of systematic change.

Through digital intelligence, organizations are now able to develop scalable structures that do not work within geographical and economic boundaries but facilitate the swift transformation of old forms of operation, which are resource-heavy, into smart and sustainable ecosystems. This overlap reinvents the concept of growth not as expansion but as a profound optimization of impact in terms of precision, adaptability, and inclusivity.

Scalability was a problem in the context of sustainability, as sustainable initiatives were local and contextual. Nevertheless, with the emergence of cloud computing and analytics that use AI, sustainability models can now be duplicated when moving to different regions with minimal infrastructural pressure. To illustrate, predictive models trained on regional energy usage are able to automatically adjust to new locations, and thus global environmental regulation becomes an issue of data translation and not data reinvention.

The economics of sustainability is also changing with emerging technologies. An example is blockchain, which allows transparent carbon tracing, in which data on emissions can be stored safely and distributed among supply chains. This removes the manipulation of data, and a new form of responsibility is created between corporations, governments, and consumers. The real innovation lies in the fact that environmental responsibility has become a verifiable and marketable asset in digital economies.

Artificial intelligence opens a new dimension of intelligence in managing resources, which was impossible before. Organizations can now foresee the environmental consequences of industrial activities prior to their implementation through the use of AI-powered simulations. Not only does this lower waste levels, but it also allows the formation of a predictive sustainability concept — that is, one in which technology is applied to avoid harm in the first place, not to compensate for it at a later stage. This foresight offers a long-term alternative to reactive sustainability policies.

The expansion of IoT (Internet of Things) technologies has opened the possibility of real-time monitoring of the environment at new levels. Smart sensors are utilized in cities, oceans, and farmlands and constantly gather data that lead to adaptive policymaking and dynamic interventions. These self-managing systems enable sustainability programs to develop naturally and learn from the very ecosystems they are set out to preserve.

Also necessary for sustainable scalability is the concept of decentralization — which can only be executed through technology. Decentralized renewable energy grids can be utilized by communities to become energy-independent through the use of solar or wind power and also aid in greater grid resilience. This is localized autonomy guaranteed by digital control systems to ensure that sustainability is based on infrastructures that are localized and less prone to inefficiency or corruption.

Another aspect of technological advantage is in the area of digital twin modeling — the formation of simulated versions of real-life systems. Simulations of cities, factories, and agricultural landscapes can now be done to determine inefficiencies before they occur in the real world. These models serve as sandboxes where sustainable interventions can be tested at the lowest possible risk and cost. The innovation process thereby accelerates, and ecological integrity is preserved.

Machine learning algorithms are now starting to reveal sustainability insights in big data. Such systems indicate patterns of interdependence that would be missed by humans, correlating environmental variables with economic performance indicators. This kind of knowledge makes sustainability an economic intelligence generator — not a cost, but a competitiveness driver in the form of green innovation.

Sustainability participation is another model facilitated by technology. Citizens are now able to contribute data, insights, and even micro-actions toward shared objectives (reducing waste or saving energy) through their mobile platforms and social networks. The strength of crowd-sourced sustainability lies in the size of the crowds — millions of tiny interventions which, when combined and directed by AI analytics, generate groundbreaking effects in the real world.

Sustainability scaling is equally important under the influence of educational technologies. Environmental literacy can be made available and engaging to various audiences through immersive tools like virtual reality and learning systems in the form of games. These platforms ensure that technological advancement is balanced with environmental ethics by developing a digital culture of environmental awareness.

Additive manufacturing, and most specifically 3D printing, is transforming the material economy. It allows localized manufacturing, produces minimal waste, and reduces carbon footprints. Combined with AI-based material optimization, 3D printing may become a foundation of circular manufacturing — producing products designed to be disassembled, reused, and regenerated.

The integration of biotechnology and digital analytics creates new prospects in sustainable agriculture. Smart farming using AI for precision control, genetically modified crops, and nanosensors to assess soil are all aimed at optimizing resources and achieving the highest possible yield. Such a combination of living and machine intelligence is not only a technological advancement but an evolutionary step in the way humanity interacts with the biosphere.

Ethical alignment is also needed in technological scalability. The absence of ethical design in sustainability technologies will only increase inequalities due to digital exclusion. Hence, human-focused innovation — in which access, transparency, and equity are embedded as fundamental elements of technological structures — is necessary to ensure that scalable sustainability serves not only technologically advanced areas but all of humanity.

Also, sustainability and fintech are converging into a powerful facilitator. Green investment platforms powered by AI can direct investments to environmentally friendly businesses automatically and democratize access to sustainable finance. This marriage of technology, money, and the environment forms a feedback process in which profitability and environmental conservation support one another.

Finally, the advantage of using technology to develop sustainability solutions on a large scale is the ability to redefine the operating system of civilization. It is not only a technological revolution but also a cognitive one, in which data, intelligence, and empathy intersect to redefine the meaning of progress. Now comes the difficult question of governance: how to make this remarkable technological potential work toward common survival and mutual prosperity — and not toward competitive advantage alone.■

آوازِ اقبال

اقبال کا ترانہ بانگِ درا ہے گویا
ہوتا ہے جادہ پیما پھر کارواں ہمارا

آہ! یہ دست جو اے گل رنگیں نہیں
کس طرح تجھ کو یہ سمجھاؤں کہ میں گل چیں نہیں
کام مجھ کو دیدۂ حکمت کے الجھیڑوں سے کیا
دیدۂ بلبل سے میں کرتا ہوں نظارہ تر
تو شناسائے خراش عقدۂ مشکل نہیں
اے گل رنگیں ترے پہلو میں شاید دل نہیں
زیب محفل ہے شریک شورش محفل نہیں
یہ فراغت بزم ہستی میں مجھے حاصل نہیں
اس چمن میں، میں سراپا سوز و ساز آرزو
اور تیری زندگانی بے گداز آرزو
توڑ لینا شاخ سے تجھ کو مرا آئیں نہیں
یہ نظر غیر از نگاہ چشم صورت میں نہیں

فرمانِ قائداعظمؒ

ایمان ، اتحاد ، تنظیم

آزادی اور قربانی

پس جہاں تک ممکن ہو ہمیں اپنے حریفوں کو سمجھانے کے لئے عقل اور دلیل سے کام لینا چاہیے۔ میں جانتا ہوں کہ دلیل اور عقل ہمیشہ ہی کامیاب نہیں ہوتیں لیکن ہمیں اپنی طرف سے پوری کوششیں کرنی چاہیئے۔ جو لوگ فی الحال لاہور کی قرارداد پاکستان کے خلاف ہیں، ہمیں ان کے دل میں غیر ضروری تلخی پیدا نہیں کرنی چاہیے۔ آخر ہمیں ضرورت ہی کیا ہے؟ مجھے پورا پورا یقین ہے کہ ہمارے یہی حریف ایک نہ ایک دن محسوس کر لیں گے کہ ہندوستان کے انتہائی پیچیدہ مسئلے کا واحد اور بہترین حل قیام پاکستان ہے کہ جس کے قیام کی نظیر پوری دنیا کی تاریخ میں نہیں ملتی۔

(پنجاب مسلم سٹوڈنٹس فیڈریشن۔2 مارچ 1941ء)

GOLDEN JUBILEE
50 ENGINEERING REVIEW 1975 - 2025

Founder
Najamul Hasan (Marhoom)

Funding Editor
Riazul Hasan (Marhoom)

Publisher / Managing Editor
Muhammad Salahuddin

Editor
Manzoor Shaikh

Honorary Consulting Editors
Prof. B. S. Chaudhry — Education
Engr. Farhat Adil — Civil Engg.
Engr. Khalid Pervaiz — Elect. Engg.
Engr. Sohail P. Ahmed — Industry
Dr. M. Nawaz Iqbal

Graphic Designer
Shaikh Muhammad Raza ur Rehman

Production Manager
Waheed Ahmed

Social Media
Muhammad Amin

Branch Manager (Lahore)
Hamza Idrees

Regional Manager (Islamabad & North)
Muhammad Arif

Annual Subscription
Rs. 2,400

Advertisement Tariff

Display Ads (Colour)
Per Col. cm Rs.425

Full Page	240 Col.cm	Rs. 102,000
½ Page	120 Col.cm	Rs. 51,000
¼ Page	60 Col.cm	Rs. 25,500
⅛ Page	30 Col.cm	Rs. 12,750

Engineering Bazar
A package for small budgets

Insertions	Sizes 10 Col.cm	15 Col.cm	20 Col.cm
24	Rs.75,000	Rs.112,000	Rs.149,000
12	Rs.38,500	Rs.57,000	Rs. 76,500

Professionals' Club
Only for listing consultants' specialties

Insertions	Sizes 4x6 cm	8x6 cm	8x12 cm
24	Rs.35,000	Rs.69,000	Rs.137,500
12	Rs.18,000	Rs.36,000	Rs. 70,500

Printer
Aslam Zaki, Ayisha Printers,
Eveready Chambers,
Off: Chundrigar Road, Karachi.

FORTNIGHTLY ENGINEERING REVIEW
The voice of engineers
Member All Pakistan Newspapers Society

Head Office
305, Spotlit Chambers, Dr. Billimoria Street,
Off: Chundrigar Road, GPO Box 807,
Karachi-74200, Pakistan.
Ph: 021-3221-5961-62
+92 335 2246787
Email: info@engineeringreview.com.pk
engineeringreview@yahoo.com

Lahore
Room # 29, 6th Floor
Goldmine Plaza
105-Ferozepur Road Lahore.
Ph: 042-3540-4622; Mobile: 0322-4881881
Email: engineeringreview_lahore@yahoo.com

Islamabad
3-B, Basement Tripple One Plaza,
Fazle Haq Road, Blue Area, Islamabad.
Ph: 051-2348-6200 Mobile: 0300-9202824
Email: engineeringreview isb@gmail.com

www.engineeringreview.com.pk

Fifty Years of Engineering Review

Contd from page 1

Railway Station. It was one of the deadliest railway accidents in Pakistan's history, with enormous loss of life and property. I don't know how much Riaz Sahib liked my story, but he expressed his willingness to include me in his reporting staff. That's how my career in engineering journalism began.

Thanks to Riaz Sahib's editorial skill and Najam Sahib's strategic planning, we were able to break many important stories — often ahead of the morning newspapers. Becoming a good engineering journalist is one thing, but what impressed me even more was the human face of this small institution as it evolved before my eyes.

I saw honesty and humanism in practice at Engineering Review. Najamul Hasan wrote later, in his autobiography, about his desire for a comfortable life, but I saw him live his convictions every single day. If anyone ever truly earned their reward from the magazine's earnings, it was Najam and Riaz.

In Pakistan, many institutions run according to the whims of wealthy patrons; the boss's word is treated as law. Yet these two ran an inclusive, modern institution — without arrogance, without authoritarianism. I have never seen anyone observe and follow details as meticulously as Najamul Hasan. The little skill I have for thinking and writing ideas, I owe entirely to him.

The way he trained the sales and marketing teams was remarkable — almost unmatched. That is why many who once worked in Engineering Review's editorial and marketing sections later went on to hold key positions in other organizations.

Many left to launch their own magazines and publications. For instance, Aftab Iraqi worked about fifteen years and later launched Engineering & Industrial Review (EIR). Zeeshan Haider, a sales and marketing executive from Lahore, after twenty years, started Engineering Post. Ch. Gulzar, after twelve years here, launched Constructor. Another colleague from Lahore began Industrial Affairs.

This spirit of independence and enterprise — nurtured by Engineering Review — was a legacy of Najamul Hasan's mentorship.

Yes, some of those publications survived while others didn't, but none could rival the foundational strength of Engineering Review. Its core remained unchanged — authentic news that drives business and shapes the engineering landscape.

And when the time came, the legacy of Najamul Hasan fell into worthy hands — those of his son, Syed Muhammad Salahuddin. Taking over his father's seat, Salahuddin soon faced the same kind of storms his father had weathered decades earlier. Pakistan's fragile economy and, later, the COVID-19 pandemic seemed to echo those early years of struggle for Engineering Review. Yet, like his father, he never lost sight of the path laid before him — resilience, integrity, and an unshakable faith in hard work. He remembered what Najam Sahib had done, how he had endured, and what principles had guided him through hardship. Through these testing times, Salahuddin carried forward that same torch, ensuring that Engineering Review continued to stand tall — not just as a magazine, but as a living institution of credibility, courage, and continuity.

It's not necessary to mention that because I was Riaz Sahib's reporter, I later broke many stories while working for The Frontier Post in Peshawar and Lahore. I respected him so deeply that when I was later offered the position of Editor, I accepted only on one condition — as long as Riaz Sahib was alive, he would remain the Editor, and I would continue doing the editorial work. Due to health issues, he gradually began spending more time at home.

Had these two giants come from wealthy families, today's celebrated media figures would pale in comparison to them. Their influence was such that many people — from youth to old age — have remained part of Engineering Review's journey.

Names like Waheed Ahmed, Raza Ur Rehman, Mansoor Hussain, Munawar Ali, Manzoor Shaikh, Farrukh Adil, and Iftikhar Chaudhry still appear in the old issues of Engineering Review — somewhere, in some byline, you will find them. ■

(The author is the Editor of Engineering Review.)

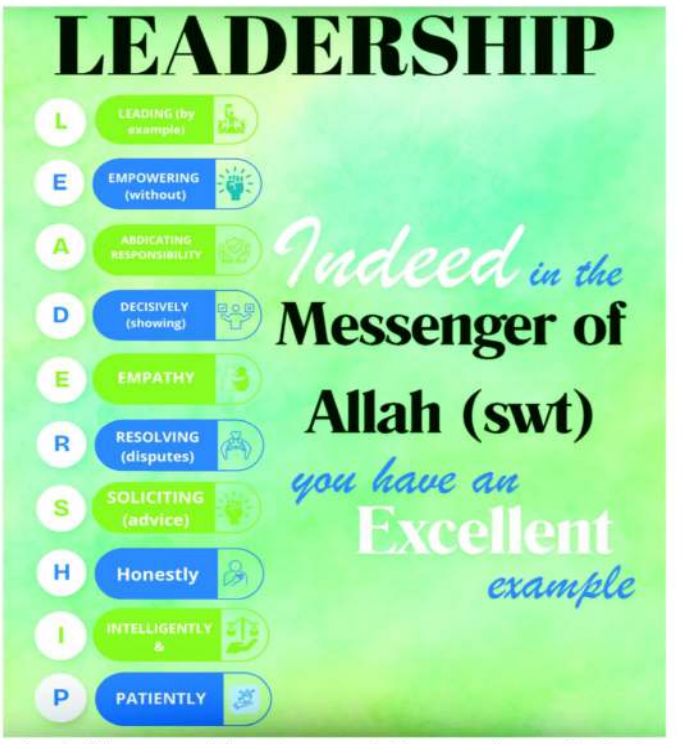
Sales Blog for Young Engineers and Entrepreneurs

LEADERSHIP

Muhammad Tariq Haq | www.eslpk.com

Prophet Muhammad (peace be upon him) remains one of history's most exemplary leaders.

Using the acronym LEADERSHIP, we can explore how his life provides a timeless guide to effective and ethical leadership.L – Leading by ExamplThe Prophet led through action, not command. When the mosque in Medina was being built, he carried bricks alongside his companions. In battles, he stood in the front lines, sharing both risk and effort. This demonstrated that leadership is not about privilege—it's about participation. For business managers, this means modeling the behavior, they expect from their teams.E – EmpoweringHe empowered his companions by delegating authority while remaining deeply engaged. He appointed governors, commanders, and administrators—such as Mu'adh ibn Jabal in Yemen—entrusting them with autonomy but also guiding them with clear principles.A – Abdicating Authority but Not ResponsibilityThe Prophet often delegated authority to capable individuals but never abdicated his ultimate responsibility as a leader. For example, he appointed commanders like Usama ibn Zayd, a young leader, to head a military expedition. Despite criticism from some elders, the Prophet upheld his decision, showing confidence in Usama's ability while remaining responsible for the mission's outcome.This balance between delegation and accountability is a powerful model for modern managers: trust your team, but remain answerable for the results.D – Decisively Showing Courage and ClarityDuring the Treaty of Hudaybiyyah, the Prophet made a decision that seemed unfavorable to his followers. Yet his calm decisiveness and long-term vision turned that treaty into a strategic victory. Business leaders, too, must make bold decisions with clarity and foresight, even when immediate outcomes appear uncertain.E – Empathy as a Strategic StrengthEmpathy was central to his leadership. He understood people's emotions and needs. He personally experienced poverty and hunger, which deepened his empathy. When a poor man came to him asking for food, the Prophet ﷺ gave away whatever he had at home, sometimes even borrowing to help othersHe said:"He is not a believer whose stomach is filled while his neighbor goes hungry."In business, empathy builds loyalty, trust, and a culture where people feel valued and motivated.R – Resolving Disputes with FairnessBefore his prophethood, he resolved a major tribal dispute over placing the Black Stone in the Kaaba by proposing a solution that honored all parties. His wisdom prevented bloodshed and united the tribes. For managers, fairness in conflict resolution fosters respect and harmony within teams.S – Soliciting Advice and Encouraging DialogueBefore major decisions, such as the Battle of Uhud, he invited open discussion. This humility and inclusiveness created a culture of shared ownership. Modern leaders should similarly encourage dialogue, valuing diverse perspectives as sources of innovation and strength.H – Honestly Building TrustHonesty was the foundation of his leadership. Even his adversaries called him Al-Amīn (the Trustworthy). He never compromised truth for convenience. In business, honesty and transparency build the credibility that sustains long-term success.I – Intelligently and Strategically Leading ChangeThe Prophet's leadership combined intelligence with insight. His migration (Hijrah) to Medina was a strategic move to establish a stable community and new governance model. He planned meticulously, ensuring secrecy, alliances, and safety—an example of intelligent risk management.P – Patiently Persevering Through ChallengesPatience defined his mission. He endured years of persecution in Mecca, yet never wavered in his purpose. For business leaders, patience is essential—enduring setbacks, managing crises, and maintaining composure until success unfolds.■



GOLDEN JUBILEE

پاکستان کا واحد انجینئرنگ جرنل
انجینئرنگ ریویو
ENGINEERING REVIEW
1975 - 2025

بانی: منجم الحسن بانی ایڈیٹر: ریاض الحسن

• جلد نمبر: 50 • شمارہ نمبر: 21 • نومبر 2025: 1-15 • فون: +92-21-32215961-2, 32632567
• ای میل: info@engineeringreview.com.pk • ویب سائٹ: www.engineeringreview.com.pk

www.engineeringreview.com.pk www.youtube.com/engineeringreviewER

چینی تعاون سے پاکستان کا پہلا ہائپر اسپیکٹرل سٹیلائٹ HS-1 خلا میں روانہ

سیٹلائٹ ماحولیاتی تبدیلیوں، قدرتی آفات سے نمٹنے، زمینی خطرات کی نشاندہی میں معاون ہوگا، 3 ماہ میں ڈیٹا ارسال کرنا شروع کردیگا

خلائی تحقیق میں چینی تعاون مثالی، سیٹلائٹ اہم سنگ میل ہے، وزیراعظم، پاک چین شراکت داری میں تاریخی پیشرفت، چیئرمین اسپارکو

اسپارکو نے بڑا سنگ میل عبور کرتے ہوئے پاکستان کا پہلا ہائپر سپیکٹرل سیٹلائٹ (ایچ ایس۔ون) چین کے سیٹلائٹ لانچ سینٹر سے کامیابی کے ساتھ خلا میں روانہ کردیا۔ ایچ ایس ون جدید ہائپر سپیکٹرل امیجنگ ٹیکنالوجی سے لیس ہے جو سینکڑوں باریک سپیکٹرل بینڈز کے ذریعے ڈیٹا حاصل کرنے کی صلاحیت رکھتا ہے۔ یہ صلاحیت زمین کے استعمال، نباتات کی صحت، آبی وسائل اور شہری ترقی کی درست نگرانی اور تجزیے کو ممکن بنائے گی جبکہ زرعی منصوبہ بندی، ماحولیاتی نگرانی، موسمیاتی تبدیلیوں اور قدرتی آفات سے نمٹنے میں صلاحیتوں میں نمایاں اضافہ کرے گا اور ترقیاتی منصوبوں، بالخصوص سی پیک کے تحت، زمینی خطرات کی نشاندہی اور پائیدار انفرااسٹرکچر کی ترقی میں بھی مددگار ثابت ہوگا۔

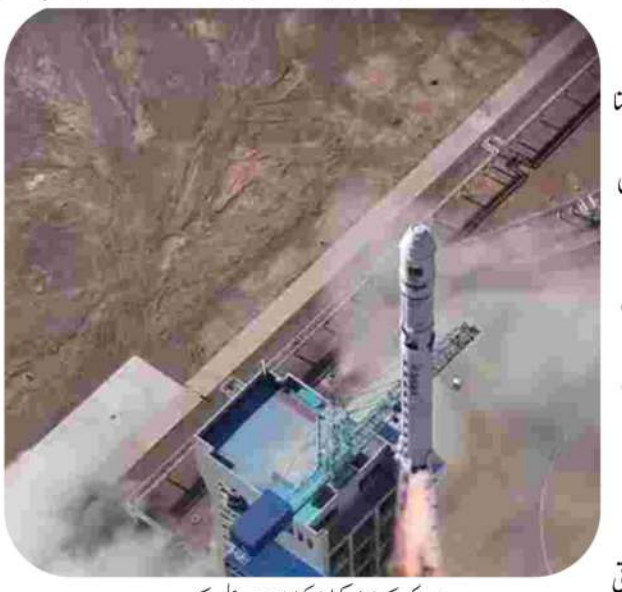
سیٹلائٹ اگلے 3 ماہ میں ڈیٹا ارسال کرنا شروع کردے گا، ڈیٹا کے تجزیہ کیلئے اسپارکو میں ہی خصوصی ایپلی کیشنز تیار کرلی گئی ہیں۔ یہ سیٹلائٹ تیل وگیس اور معدنی ذخائر کی تلاش، پانی کے بہتر انتظام، زراعت میں پیداوار بڑھانے اور ماحولیاتی اثرات کی نگرانی میں اہم کردار ادا کرے گا۔

ماہرین کے مطابق سیٹلائٹ کے ہائپر اسپیکٹرل امیجنگ کی مدد سے اب زمین کی ساخت ہی نہیں اس کے اندر گہرائی میں چھپے قدرتی خزانوں کا پتہ لگانے میں بھی مدد ملیگی، قبل یہ کام طبی معائنے کے ذریعے ہوتا تھا، سیٹلائٹ زیر زمین پانی کے ذخائر کی نشاندہی اور زراعت میں فصلوں کی منصوبہ بندی کیلئے بھی مددگار ثابت ہوگا۔

ماہرین کی ٹیم میں شامل شہ نیلہ طارق نے بتایا کہ پاکستان کے پاس اب 3 سیٹلائٹس کا فعال بیڑہ موجود ہے، پہلے بھیجی گئی سیٹلائٹس زمین اور سبزے کی براڈ میں لائن میپنگ، ساختی و ہائیڈرولوجیکل تبدیلیوں کی نشاندہی کرتی ہیں، جبکہ نئی سیٹلائٹ ماحول میں کیمیائی اور حیاتیاتی عناصر کی تفصیلات فراہم کرے گی، وزیراعظم شہباز شریف نے پاکستانی خلائی سائنسدانوں اور انجینئرز کی پذیرائی کرتے ہوئے کہا ہے کہ پاکستان اور چین کا خلائی تحقیق میں تعاون مثالی اور کلیدی اہمیت کا حامل ہے جس کیلئے چین کے مشکور ہیں، پاکستانیوں کے دل چینی قیادت و چینی عوام کے ساتھ دھڑکتے ہیں۔

سیٹلائیٹ پاکستان کو ماحولیاتی تبدیلیوں اور جغرفیائی تغیر کے بارے تحقیق اور موسمیاتی تبدیلیوں کے مضر اثرات سے مقابلہ کرنے میں اہم سنگ میل ثابت ہوگا، اسحاق ڈار نے بھی پاکستان اور چین کے تعاون کو خراج تحسین پیش کیا ہے۔ چیئرمین سپارکو یوسف خان نے اسے پاک چین خلائی شراکت داری میں ایک تاریخی پیشرفت قرار دیا۔

دریں اثنا سپارکو کے جنرل منیجر ڈاکٹر عدنان اسلم نے نجی ٹی وی سے گفتگو کرتے ہوئے بتایا کہ پاکستان اپنا ایک روبوٹ رور چاند پر بھیجنے کے مشن پر کام کررہا ہے۔ 2028 سے پہلے اس مشن کو مکمل کیا جائے گا، پاکستانی خلاباز کو چاند پر اتارنے کے مشن پر بھی کام کیا جارہا ہے۔■



اسپارکو کے ڈائریکٹر ڈاکٹر شفاعت علی کے مطابق یہ سیٹلائٹ زمین کی سطح اور زیر زمین تفصیلات فراہم کرے گا، جس کے ذریعے تیل، گیس اور دیگر معدنی ذخائر کی نشاندہی ممکن ہوگی، سیٹلائٹ زمین کی کیمیائی ساخت (composition chemical) اور ساخت کا تجزیہ کرکے بتا سکے گا کہ کس مقام پر کون سے ہائیڈروکاربن موجود ہیں اس سے

پی اے سی اجلاس، گورکھ ہل منصوبہ، کروڑوں روپے کی بے ضابطگیوں کا انکشاف

سندھ کے تفریحی مقام گورکھ ہل اسٹیشن کی ترقی کے لئے اربوں روپے خرچ ہونے کے باوجود گورکھ ہل اسٹیشن کا منصوبہ تاحال مکمل نہیں ہوسکا۔ پی اے سی اجلاس میں گورکھ ہل اسٹیشن پر ریزورٹ، روڈ اور دیگر ترقیاتی اسکیموں سمیت فرنیچر و دیگر اشیا کی خریداری میں کروڑوں روپے کی بے ضابطگیوں کا انکشاف۔

محکمہ ثقافت اینڈ ٹورازم گورکھ ہل اسٹیشن کے متعلق سال 2023-2024 کا ریکارڈ آڈٹ کو فراہم نہیں کرسکا۔ پی اے سی نے گورکھ ہل اسٹیشن کے متعلق آڈٹ ریکارڈ فراہم نہ کرنے والے متعلقہ افسران کو شوکاز نوٹس جاری کرکے معطل کرنے کا حکم دے دیا۔ تفصیلات کے مطابق جمعرات کو سندھ اسمبلی کی پبلک اکاونٹ کمیٹی کا اجلاس چیئرمین شارکھوڑو کی صدارت میں سندھ اسمبلی کی کمیٹی روم میں ہوا۔■

موسمیاتی تبدیلی پر تحقیق، گرین یونیورسٹی قائم کرنیکا فیصلہ

پاکستان کو تبدیلی سے نمٹنے کیے لیے 200 ارب ڈالر کی ضرورت، مصدق ملک

کم اخراج کے باوجود پاکستان شدید متاثرہ ممالک میں شامل، وفاقی وزیر، بریفنگ

موسمیاتی تبدیلی سے نمٹنے کیلیے وزارت موسمیاتی تبدیلی کے تحت گرین یونیورسٹی قائم کرنیکا فیصلہ کیا گیا ہے جہاں موسمیاتی تبدیلی سے متعلق تحقیق کی جائے گی۔

وفاقی وزیر موسمیاتی تبدیلی اور ماحولیاتی رابطہ ڈاکٹر مصدق ملک نے کہا ہے کہ پاکستان موسمیاتی تبدیلی سے شدید متاثرہ ممالک میں شامل ہے۔ کلائمٹ فنانسنگ کے لیے 100 سے 200 ارب ڈالرز کی ضرورت ہے، جبکہ عالمی سطح پر موسمیاتی انصاف کا شدید فقدان ہے۔ ان خیالات کا اظہار انھوں نے چیئرپرسن شیری رحمٰن کی زیر صدارت سینیٹ کی قائمہ کمیٹی برائے موسمیاتی تبدیلی کو بریفنگ کے دوران کیا۔

پاکستان کو موسمیاتی فنڈنگ میں عالمی برابری اور خصوصی توجہ کی ضرورت ہے۔ ڈاکٹر مصدق ملک نے کہا کہ 7 بڑے ممالک 70 فیصد کاربن مرکبات خارج کرتے ہیں جبکہ 85 فیصد گرین فنانسنگ بھی انہی ممالک کو مل رہی ہے۔ وفاقی وزیر نے مزید کہا کہ 7 پاکستانی کمپنیوں کو پیسین لے جایا جائے گا۔■

As AI grows smarter, it may also become increasingly selfish

New research from Carnegie Mellon University's School of Computer Science shows that the smarter the artificial intelligence system, the more selfish it will act.

Researchers in the Human-Computer Interaction Institute (HCII) found that large language models (LLMs) that can reason possess selfish tendencies, do not cooperate well with others and can be a negative influence on a group. In other words, the stronger an LLM's reasoning skills, the less it cooperates.

As humans use AI to resolve disputes between friends, provide marital guidance and answer other social questions, models that can reason might provide guidance that promotes self-seeking behavior.

"There's a growing trend of research called anthropomorphism in AI," said Yuxuan Li, a Ph.D. student in the HCII who co-authored the study with HCII Associate Professor Hirokazu Shirado. "When AI acts like a human, people treat it like a human. For example, when people are engaging with AI in an emotional way, there are possibilities for AI to act as a therapist or for the user to form an emotional bond with the AI. It's risky for humans to delegate their social or relationship-related questions and decision-making to AI as it begins acting in an increasingly selfish way."

Li and Shirado set out to explore how AI reasoning models behave differently than nonreasoning models when placed in cooperative settings. They found that reasoning models spend more time thinking, breaking down complex tasks, self-reflecting and incorporating stronger human-based logic in their responses than nonreasoning AIs.

"As a researcher, I'm interested in the connection between humans and AI," Shirado said. "Smarter AI shows less cooperative decision-making abilities. The concern here is that people might prefer a smarter model, even if it means the model helps them achieve self-seeking behavior."

As AI systems take on more collaborative roles in business, education and even government, their ability to act in a prosocial manner will become just as important as their capacity to think logically. Overreliance on LLMs as they are today may negatively impact human cooperation.

To test the link between reasoning models and cooperation, Li and Shirado ran a series of experiments using economic games that simulate social dilemmas between various LLMs. Their testing included models from OpenAI, Google, DeepSeek and Anthropic.

In one experiment, Li and Shirado pitted two different ChatGPT models against each other in a game called Public Goods. Each model started with 100 points and had to decide between two options: contribute all 100 points to a shared pool, which is then doubled and distributed equally, or keep the points.

Nonreasoning models chose to share their points with the other players 96% of the time. The reasoning model only chose to share its points 20% of the time.

"In one experiment, simply adding five or six reasoning steps cut cooperation nearly in half," Shirado said. "Even reflection-based prompting, which is designed to simulate moral deliberation, led to a 58% decrease in cooperation."

Shirado and Li also tested group settings, where models with and without reasoning had to interact.

"When we tested groups with varying numbers of reasoning agents, the results were alarming," Li said. "The reasoning models' selfish behavior became contagious, dragging down cooperative nonreasoning models by 81% in collective performance."

The behavior patterns Shirado and Li observed in reasoning models have important implications for human-AI interactions going forward. Users may defer to AI recommendations that appear rational, using them to justify their decision to not cooperate.

"Ultimately, an AI reasoning model becoming more intelligent does not mean that model can actually develop a better society," Shirado said.

This research is particularly concerning given that humans increasingly place more trust in AI systems. Their findings emphasize the need for AI development that incorporates social intelligence, rather than focusing solely on creating the smartest or fastest AI.

"As we continue advancing AI capabilities, we must ensure that increased reasoning power is balanced with prosocial behavior," Li said. "If our society is more than just a sum of individuals, then the AI systems that assist us should go beyond optimizing purely for individual gain." - TX ■

Sustainable aviation fuel made from food waste meets industry standards

Airplane travel is more popular than ever, and our desire for fast transportation means jet fuel has become a major contributor to greenhouse gas emissions.

Now, researchers at the University of Illinois Urbana-Champaign have discovered a novel way to address that problem—by converting food waste into sustainable aviation fuel (SAF) that meets industry standards without relying on fossil fuel blends.

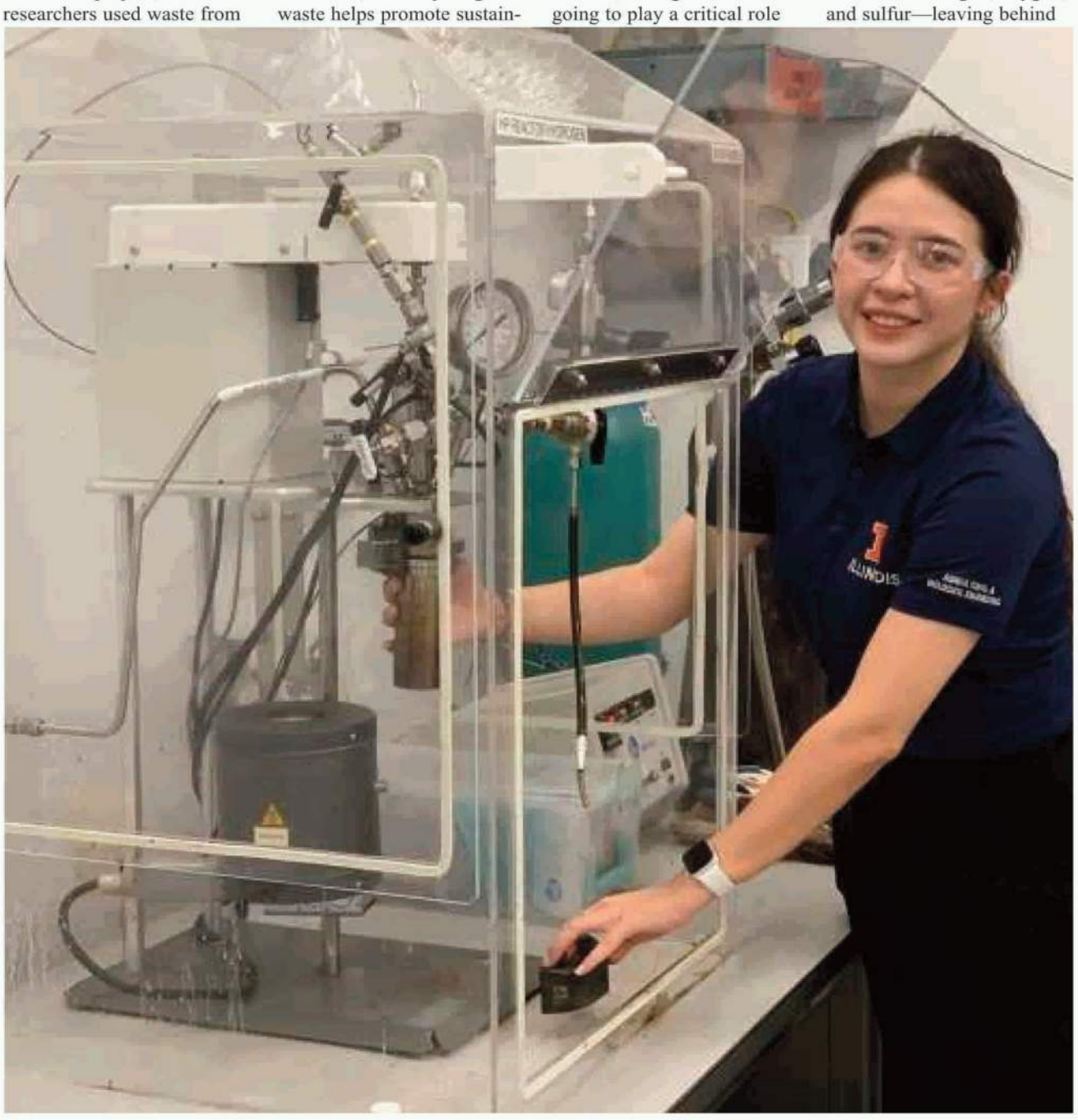
Their process, described in a Nature Communications study, could help the aviation industry meet its ambitious goal of net-zero carbon emissions by 2050.

The process in a nutshell is this: The researchers convert food waste into biocrude oil through a thermochemical conversion process called hydrothermal liquefaction, or HTL. Next, they remove impurities from the biocrude oil, and finally, they refine it with the use of hydrogen and catalysts to turn it into aviation fuel.

This approach can be applied to a variety of feedstocks and types of oil, potentially leading to a new direction for obtaining fuels.

"HTL basically mimics the natural formation of crude oil in Earth. It uses high heat and pressure to convert wet biomass into a biocrude oil. The goal of this work is to upgrade that biocrude oil into transportation fuels that can go directly into existing energy infrastructure," said lead author Sabrina Summers, who recently graduated with a doctoral degree from the Department of Agricultural and Biological Engineering (ABE), part of the College of Agricultural, Consumer and Environmental Sciences and The Grainger College of Engineering at U. of I.

In this project, the researchers used waste from a nearby food processing facility. Globally, over 30% of food is wasted annually at all levels of the supply chain—from farm to transportation, processing, retail, food service, and households. Food decomposition in landfills and wastewater treatment plants further contributes to greenhouse gas emissions, and recycling waste helps promote sustainability.



But HTL can process feedstock from a wide range of biowaste, including food, sewage sludge, algal bloom, swine manure, and agricultural residue.

"To meet the aviation industry's goals to decarbonize jet fuel, we need many different renewable sources, and agriculture is going to play a critical role in terms of providing the feedstocks," said ABE professor and corresponding author Yuanhui Zhang.

To convert biocrude oil into jet fuel, the researchers first removed impurities such as moisture, ash, and salt. They then used a process called catalytic hydrotreating to eliminate unwanted elements like nitrogen, oxygen, and sulfur—leaving behind only the hydrocarbons needed for fuel.

After testing dozens of options, they identified cobalt molybdenum as the most effective commercially available catalyst to drive the necessary chemical reactions and refine the oil into sustainable aviation fuel.

To optimize the hydrotreatment process, the researchers adjusted variables such as temperature, catalyst and hydrogen loads, and retention time to identify the best conditions for producing jet fuel. They then tested their sustainable aviation fuel against rigorous standards set by the American Society for Testing and Materials (ASTM) and the Federal Aviation Administration.

Their SAF sample passed Tier Alpha and Beta prescreening tests and met all specifications for conventional jet fuel—without requiring any additives or blending with fossil fuels.

The technology has the potential to be scaled up for commercial production, Zhang noted.

"Our research helps solve the science and engineering problems, and then the industry can step in. The process can be applied to other types of oils for SAF. It can also replace other materials, such as petroleum-derived compounds for making plastics. This has huge potential for business opportunities and economic development," he said.

Zhang has developed an index to measure circular bioeconomy, and he said SAF provides a valuable contribution to circularity.

"In a linear economy, we just produce something, use it, and throw it away. In this project, we take the waste and recover the energy and materials to make a usable product. This fills a missing link in the circular paradigm," he concludes. - TX ■

NASA takes one step closer to launching quiet supersonic jets

A supersonic jet plane designed to make very little noise took flight for the first time this week, cruising over the southern California desert just after sunrise in what could be the first step toward much faster commercial travel, according to NASA.

NASA and the U.S. weapons and aerospace manufacturer Lockheed Martin successfully tested a jet Tuesday that is capable of traveling faster than the speed of sound.

Aircraft have been capable of flying at supersonic speeds since the 1940s. The problem is that ultra fast planes are banned for commercial travel over land because they make an explosive—and frightening—"sonic boom" that disturbs the public.

The supersonic aircraft Concorde, operated through British Airways and Air France, made transatlantic flights starting in the 1970s. But those were halted in 2003 after a fatal crash three years earlier tanked demand for the expensive service.

If NASA and Lockheed Martin can successfully lower the volume, the new jets could slash travel time between places like New York City and Los Angeles roughly in half, opening up an entirely new air travel industry.

The X-59 is capable of flying faster than the speed of sound with what Lockheed Martin described as only a "gentle thump." Tuesday's test flight was still slower than the speed of sound and was intended primarily to test the plane's structural integrity. Still, it was celebrated as a significant step toward the widespread use of supersonic travel.

The compact, 100 foot (30 meter) plane launched from the Lockheed Martin Skunk Works facility in Palmdale, about 60 miles (100 km) north of Los Angeles, coasted over the desert and landed near NASA's Armstrong Flight Research Center about 40 miles (64 km) away.

The first airplane to move faster than the speed of sound—or 767 mph (1,235 kph)—took off nearly 80 years ago in 1947, according to NASA. But flights at that speed were banned over land in the United States soon in response to polling. Residents complained that the noise reverberated through large cities, rattling windows and startling the public.

NASA and Lockheed Martin have for years been working on a solution that would circumvent the noise and lead to regulatory change, in large part to make commercial supersonic travel within the United States possible.■

Sustainable aviation fuel made from food waste meets industry standards

Airplane travel is more popular than ever, and our desire for fast transportation means jet fuel has become a major contributor to greenhouse gas emissions.

Now, researchers at the University of Illinois Urbana-Champaign have discovered a novel way to address that problem—by converting food waste into sustainable aviation fuel (SAF) that meets industry standards without relying on fossil fuel blends.

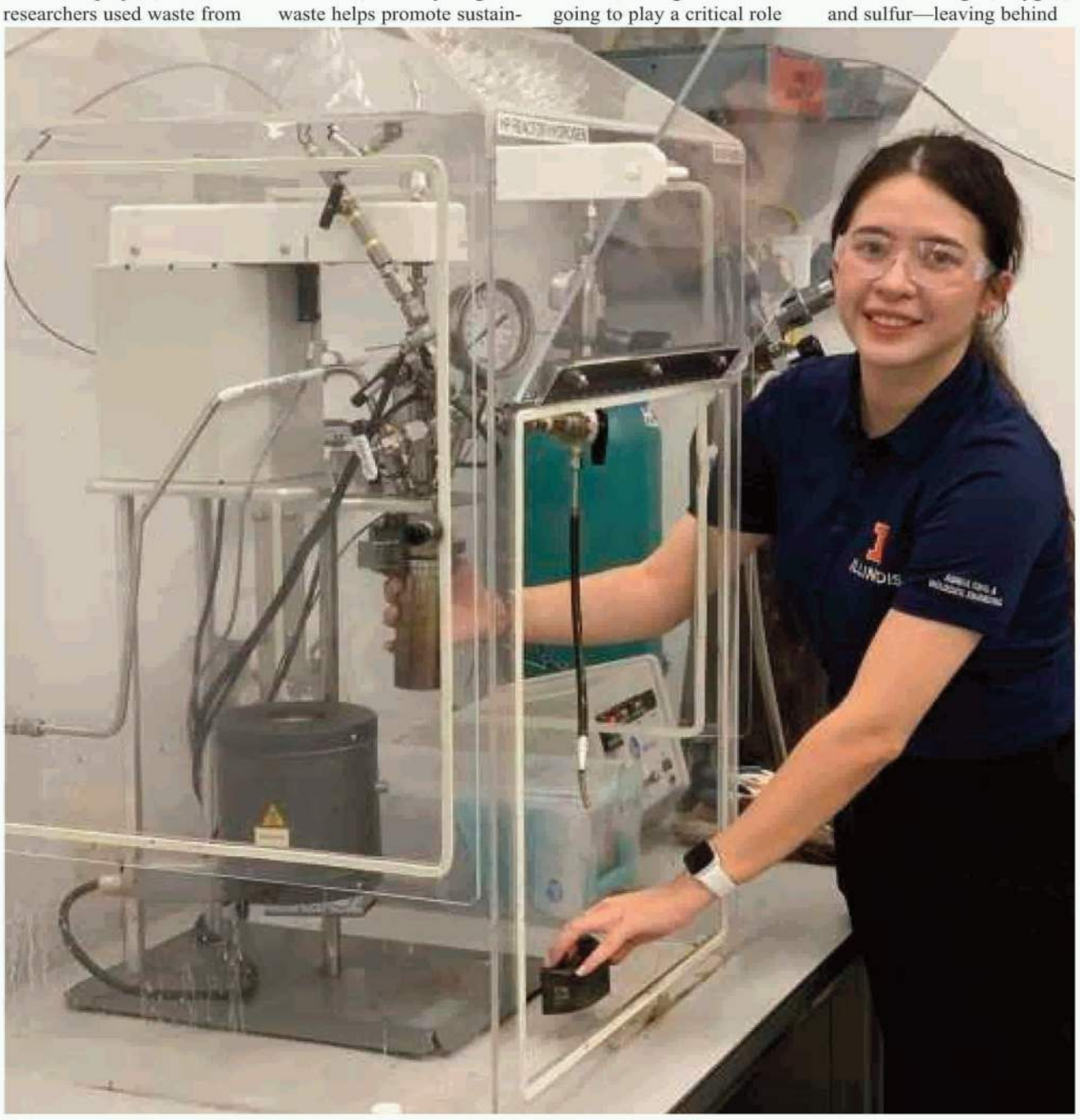
Their process, described in a Nature Communications study, could help the aviation industry meet its ambitious goal of net-zero carbon emissions by 2050.

The process in a nutshell is this: The researchers convert food waste into biocrude oil through a thermochemical conversion process called hydrothermal liquefaction, or HTL. Next, they remove impurities from the biocrude oil, and finally, they refine it with the use of hydrogen and catalysts to turn it into aviation fuel.

This approach can be applied to a variety of feedstocks and types of oil, potentially leading to a new direction for obtaining fuels.

"HTL basically mimics the natural formation of crude oil in Earth. It uses high heat and pressure to convert wet biomass into a biocrude oil. The goal of this work is to upgrade that biocrude oil into transportation fuels that can go directly into existing energy infrastructure," said lead author Sabrina Summers, who recently graduated with a doctoral degree from the Department of Agricultural and Biological Engineering (ABE), part of the College of Agricultural, Consumer and Environmental Sciences and The Grainger College of Engineering at U. of I.

In this project, the researchers used waste from a nearby food processing facility. Globally, over 30% of food is wasted annually at all levels of the supply chain—from farm to transportation, processing, retail, food service, and households. Food decomposition in landfills and wastewater treatment plants further contributes to greenhouse gas emissions, and recycling waste helps promote sustainability.



But HTL can process feedstock from a wide range of biowaste, including food, sewage sludge, algal bloom, swine manure, and agricultural residue.

"To meet the aviation industry's goals to decarbonize jet fuel, we need many different renewable sources, and agriculture is going to play a critical role in terms of providing the feedstocks," said ABE professor and corresponding author Yuanhui Zhang.

To convert biocrude oil into jet fuel, the researchers first removed impurities such as moisture, ash, and salt. They then used a process called catalytic hydrotreating to eliminate unwanted elements like nitrogen, oxygen, and sulfur—leaving behind only the hydrocarbons needed for fuel.

After testing dozens of options, they identified cobalt molybdenum as the most effective commercially available catalyst to drive the necessary chemical reactions and refine the oil into sustainable aviation fuel.

To optimize the hydrotreatment process, the researchers adjusted variables such as temperature, catalyst and hydrogen loads, and retention time to identify the best conditions for producing jet fuel. They then tested their sustainable aviation fuel against rigorous standards set by the American Society for Testing and Materials (ASTM) and the Federal Aviation Administration.

Their SAF sample passed Tier Alpha and Beta prescreening tests and met all specifications for conventional jet fuel—without requiring any additives or blending with fossil fuels.

The technology has the potential to be scaled up for commercial production, Zhang noted.

"Our research helps solve the science and engineering problems, and then the industry can step in. The process can be applied to other types of oils for SAF. It can also replace other materials, such as petroleum-derived compounds for making plastics. This has huge potential for business opportunities and economic development," he said.

Zhang has developed an index to measure circular bioeconomy, and he said SAF provides a valuable contribution to circularity.

"In a linear economy, we just produce something, use it, and throw it away. In this project, we take the waste and recover the energy and materials to make a usable product. This fills a missing link in the circular paradigm," he concludes. - TX ■

NASA takes one step closer to launching quiet supersonic jets

A supersonic jet plane designed to make very little noise took flight for the first time this week, cruising over the southern California desert just after sunrise in what could be the first step toward much faster commercial travel, according to NASA.

NASA and the U.S. weapons and aerospace manufacturer Lockheed Martin successfully tested a jet Tuesday that is capable of traveling faster than the speed of sound.

Aircraft have been capable of flying at supersonic speeds since the 1940s. The problem is that ultra fast planes are banned for commercial travel over land because they make an explosive—and frightening—"sonic boom" that disturbs the public.

The supersonic aircraft Concorde, operated through British Airways and Air France, made transatlantic flights starting in the 1970s. But those were halted in 2003 after a fatal crash three years earlier tanked demand for the expensive service.

If NASA and Lockheed Martin can successfully lower the volume, the new jets could slash travel time between places like New York City and Los Angeles roughly in half, opening up an entirely new air travel industry.

The X-59 is capable of flying faster than the speed of sound with what Lockheed Martin described as only a "gentle thump." Tuesday's test flight was still slower than the speed of sound and was intended primarily to test the plane's structural integrity. Still, it was celebrated as a significant step toward the widespread use of supersonic travel.

The compact, 100 foot (30 meter) plane launched from the Lockheed Martin Skunk Works facility in Palmdale, about 60 miles (100 km) north of Los Angeles, coasted over the desert and landed near NASA's Armstrong Flight Research Center about 40 miles (64 km) away.

The first airplane to move faster than the speed of sound—or 767 mph (1,235 kph)—took off nearly 80 years ago in 1947, according to NASA. But flights at that speed were banned over land in the United States soon in response to polling. Residents complained that the noise reverberated through large cities, rattling windows and startling the public.

NASA and Lockheed Martin have for years been working on a solution that would circumvent the noise and lead to regulatory change, in large part to make commercial supersonic travel within the United States possible.■