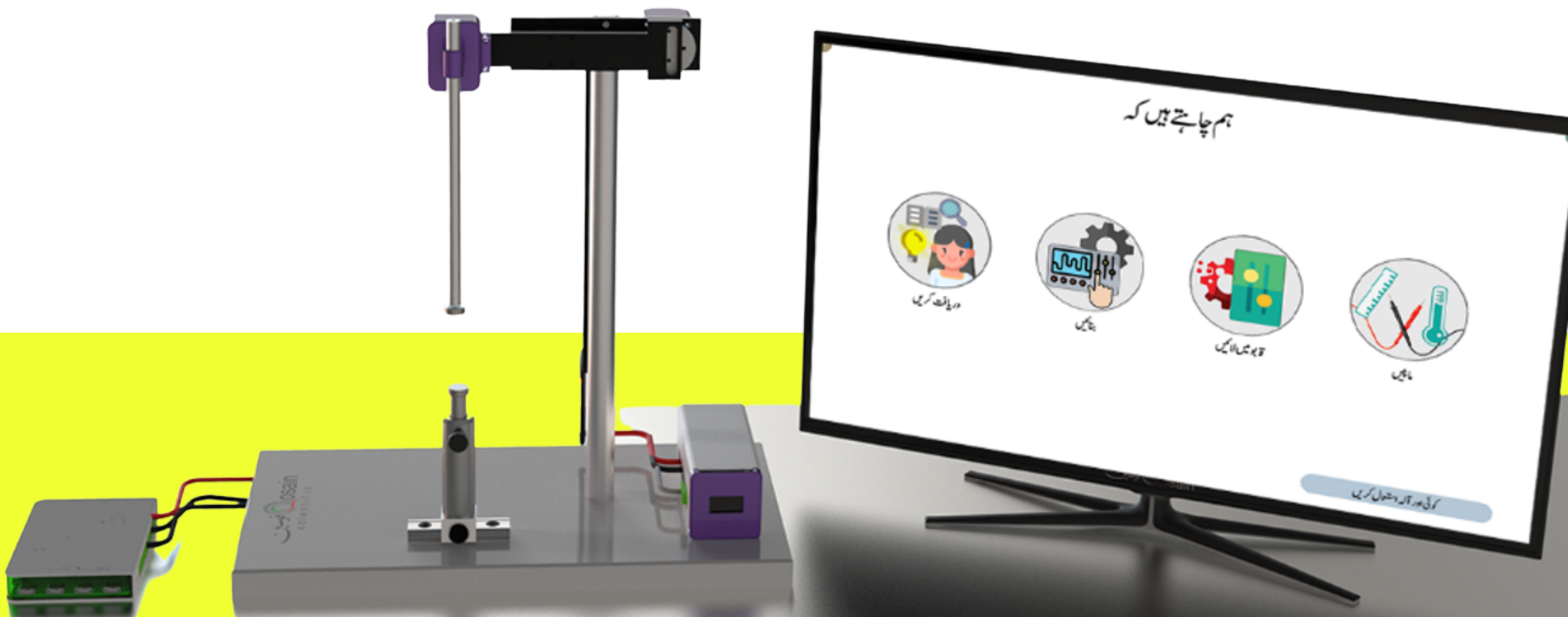




INVENTING THE TOOLS OF DISCOVERY

Dr. Sabieh Anwar's team along is spurring a culture of scientific curiosity, investigation, and innovation at Physlab.

He has created tools, experiments, and platforms that help students learn, educators inspire, scientists research, hobbyists materialize their ideas, and laypersons explore the physical world around them. Seed funded by the HEC Technology Development Fund, this initiative called the Qosain Scientific has developed over a hundred distinct reconfigurable experiments and several versatile equipment. Over the recent years, these instruments have transcended the confines of Physlab to reach several other universities, research groups, and individuals.



A local effort to engineer a **STEM Revolution**



*Inciting a passion for scientific curiosity and inquiry
by indigenous tools that enable users to:*

MEASURE

and visualize the
surrounding physical
phenomena

DISCOVER

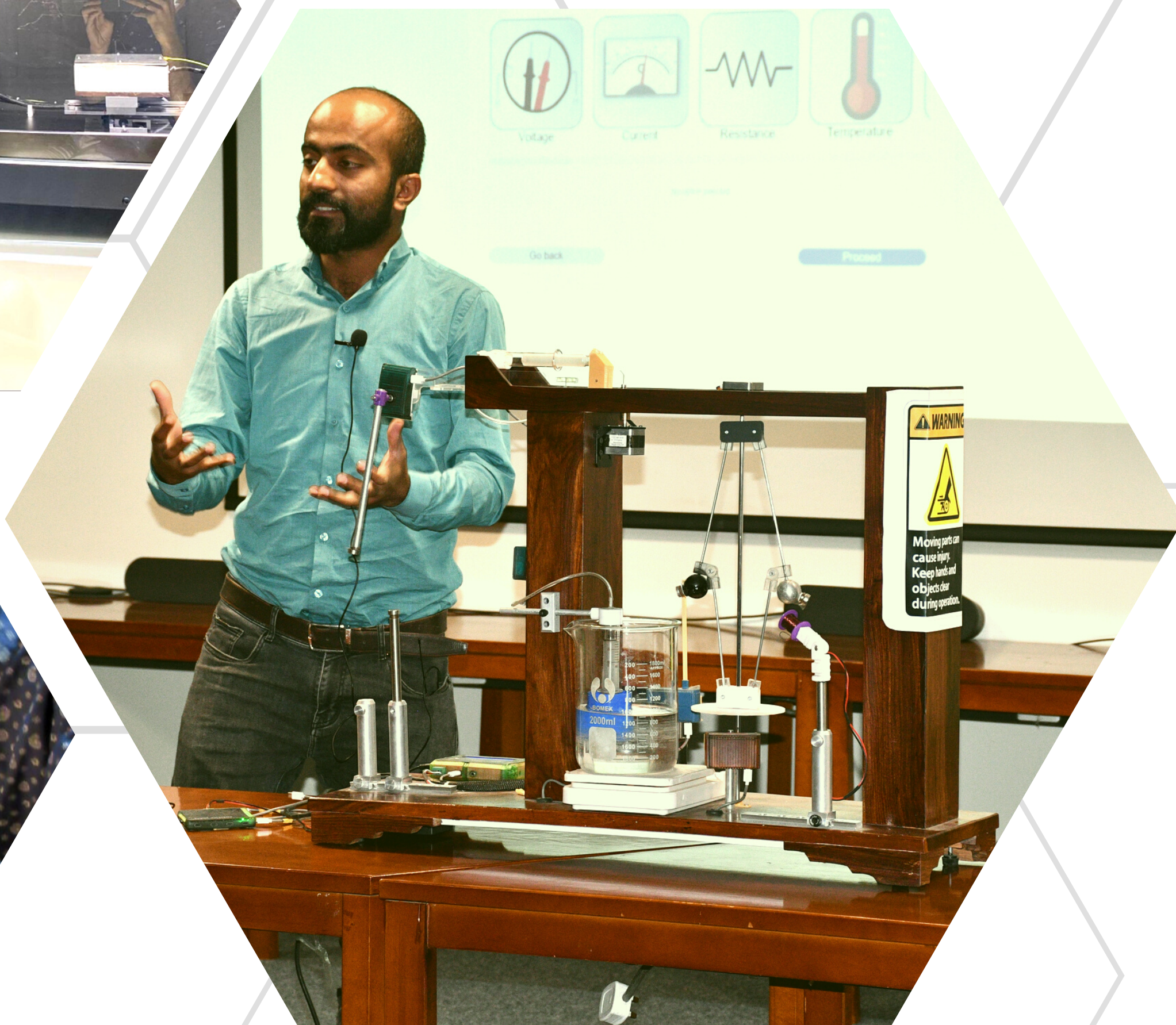
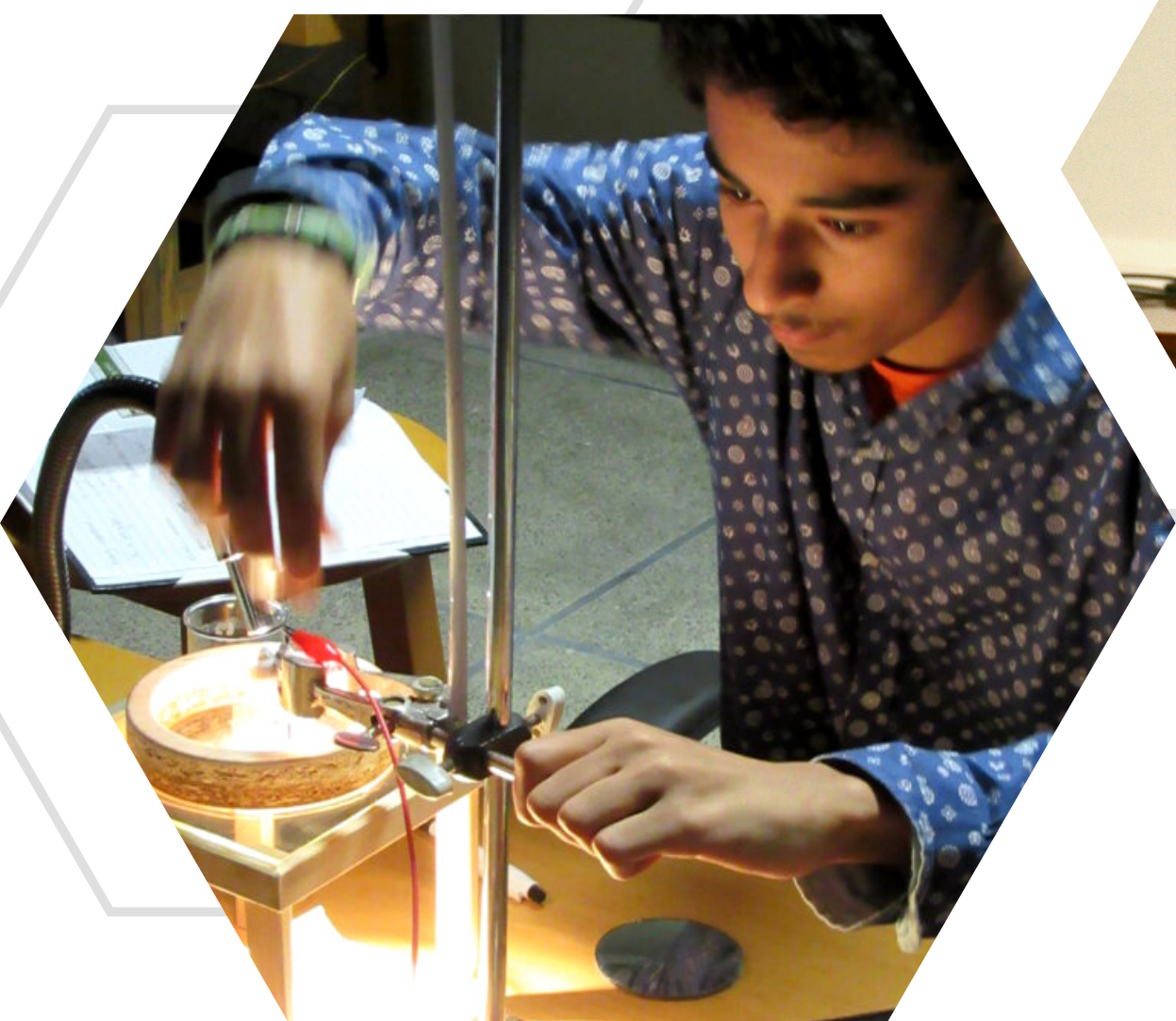
and investigate with
tools of scientific
imagination

PERFORM

experiments and
transform knowledge
to experiences

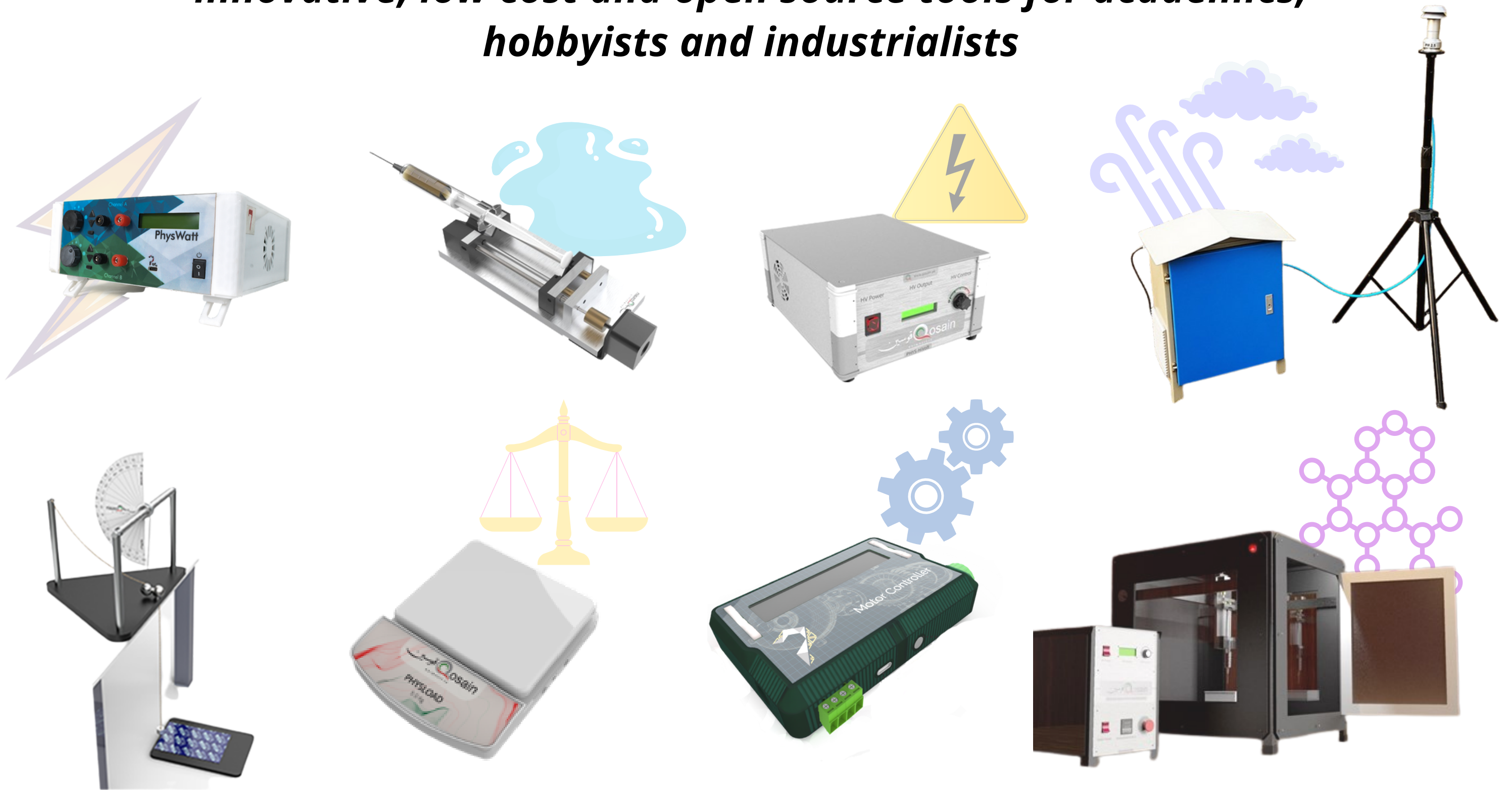
INSPIRE

and intellectually
empower the
community

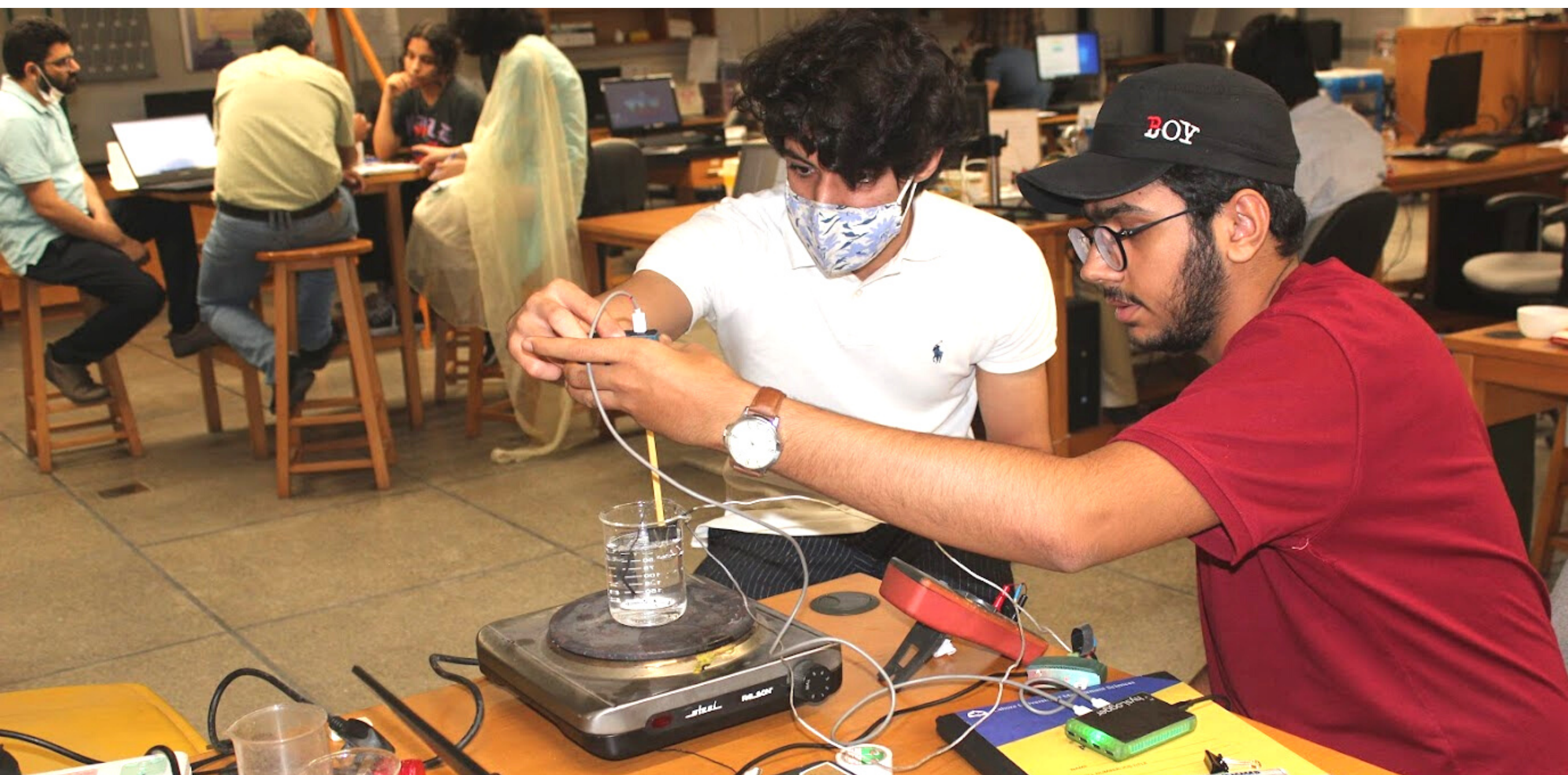


We create tools of scientific discovery

*Fostering a culture of scientists and co-creators by
innovative, low cost and open source tools for academics,
hobbyists and industrialists*



Equipping the Labs of Pakistan



PhysLogger

One portable tool to measure, control, and analyze the data around you



The flagship tool of this project is PhysLogger. Combining a pocket-sized device with a rich desktop application and a suite of sensing and controlling devices, PhysLogger is extremely easy-to-use and flexible. Using self-guided tours in the application, one can set up several PhysInstruments connected via USB-C style connectors to PhysLogger. Physical quantities can be logged and visualized as time plots, controlled via actuating devices, or manipulated to create mechanisms of one's interest—all with just a few clicks.

Physical quantities like temperature, voltage, force, magnetic flux, intensity, and sound level can be effortlessly and vividly measured and graphed against time on the screen. Not just measurement, quantities like rotation and power can also be manipulated programmatically using control-type PhysInstruments like our stepper motor controller and PhysWatt.

PhysLogger Desktop Application

- One versatile software to collect and graph all physical quantities
- Highly intuitive
- Scalable to meet your needs
- Multi-language supported (English, Urdu)
- Drag-and-drop and wizard features
- PID controllers, signal generators, conditions, logics, and mathematical computation

Who are these tools for

- Education (individuals, classrooms, labs, field work)
- Industry (industry 4.0 and monitoring applications)
- Research Laboratories (universities and research organisations)
- Environmental Monitoring Sector (pollution, fog measurement, weather stations, etc.)
- The Biomedical and Nanotechnology Sectors



Measure



Control



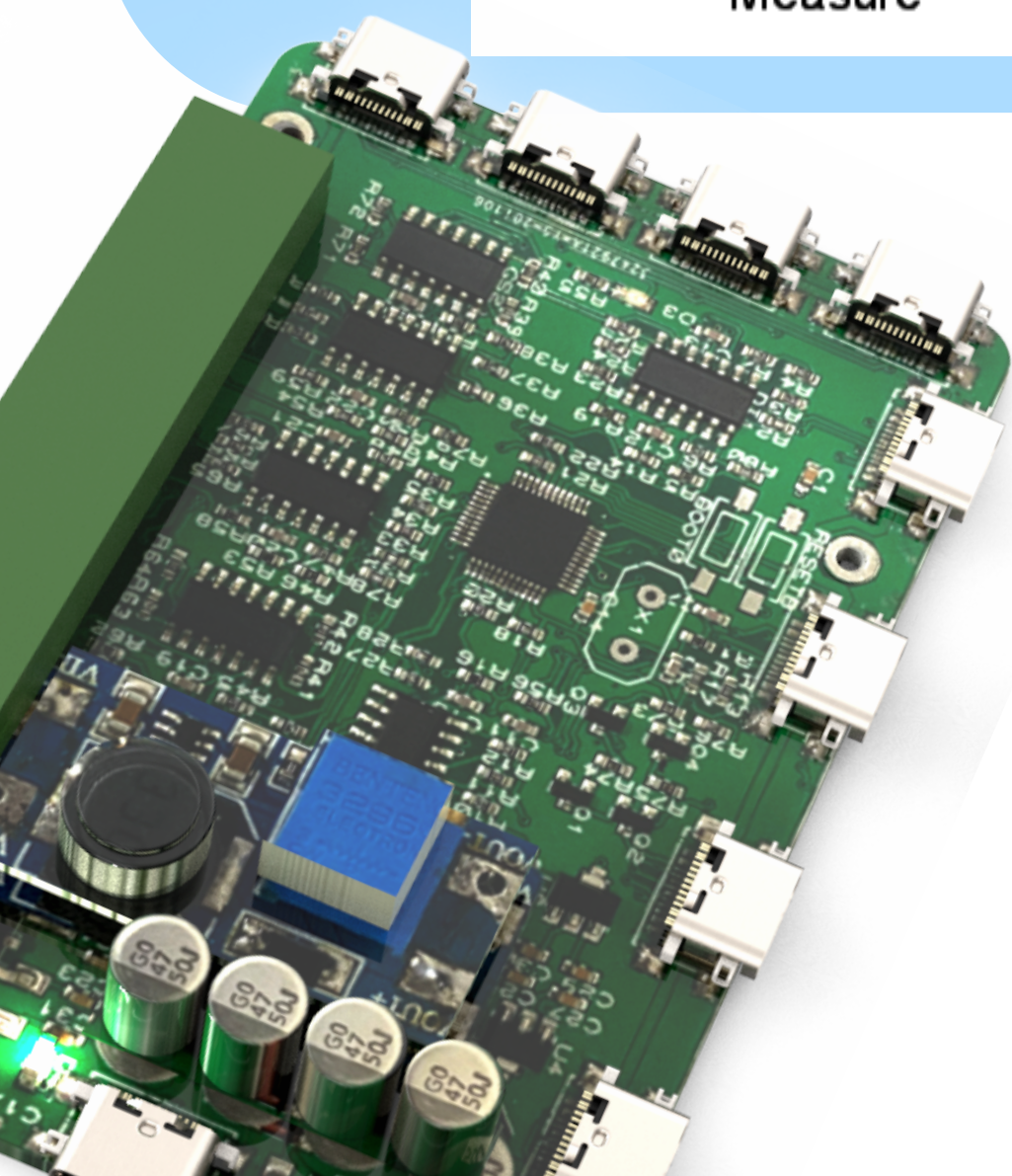
Create

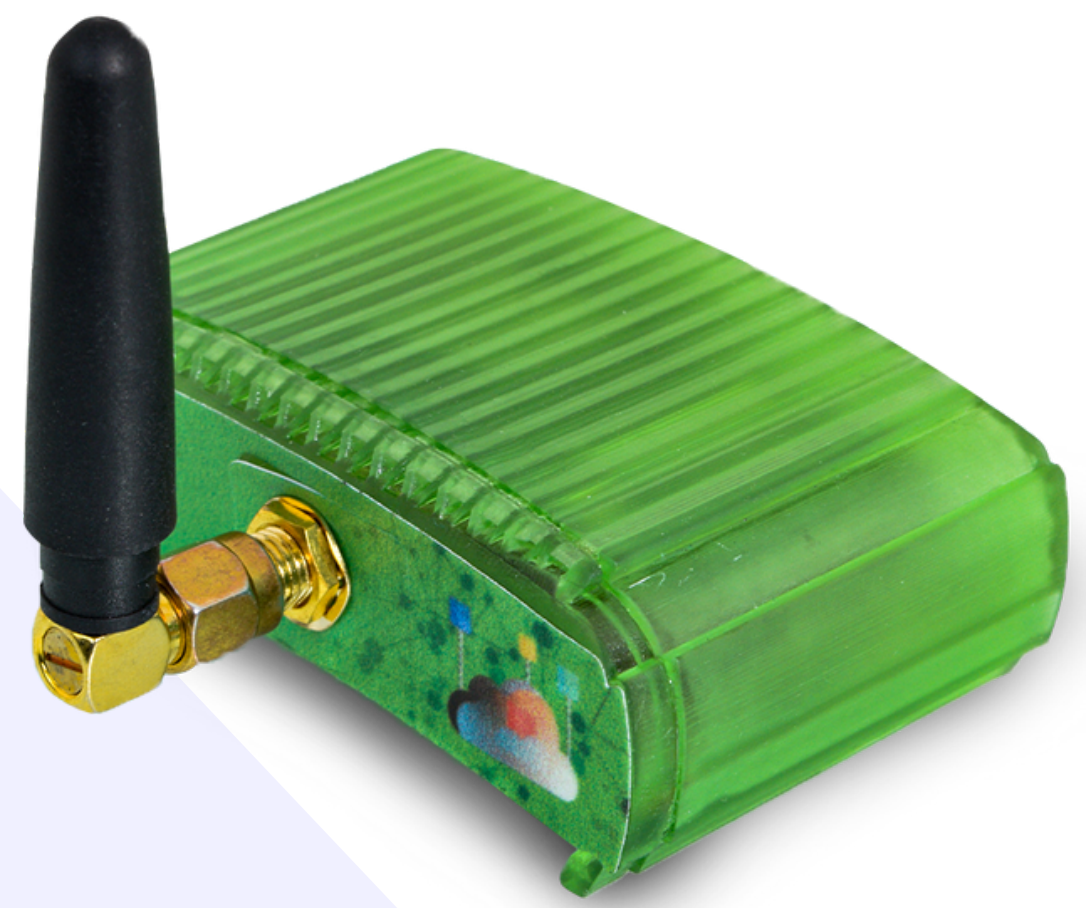
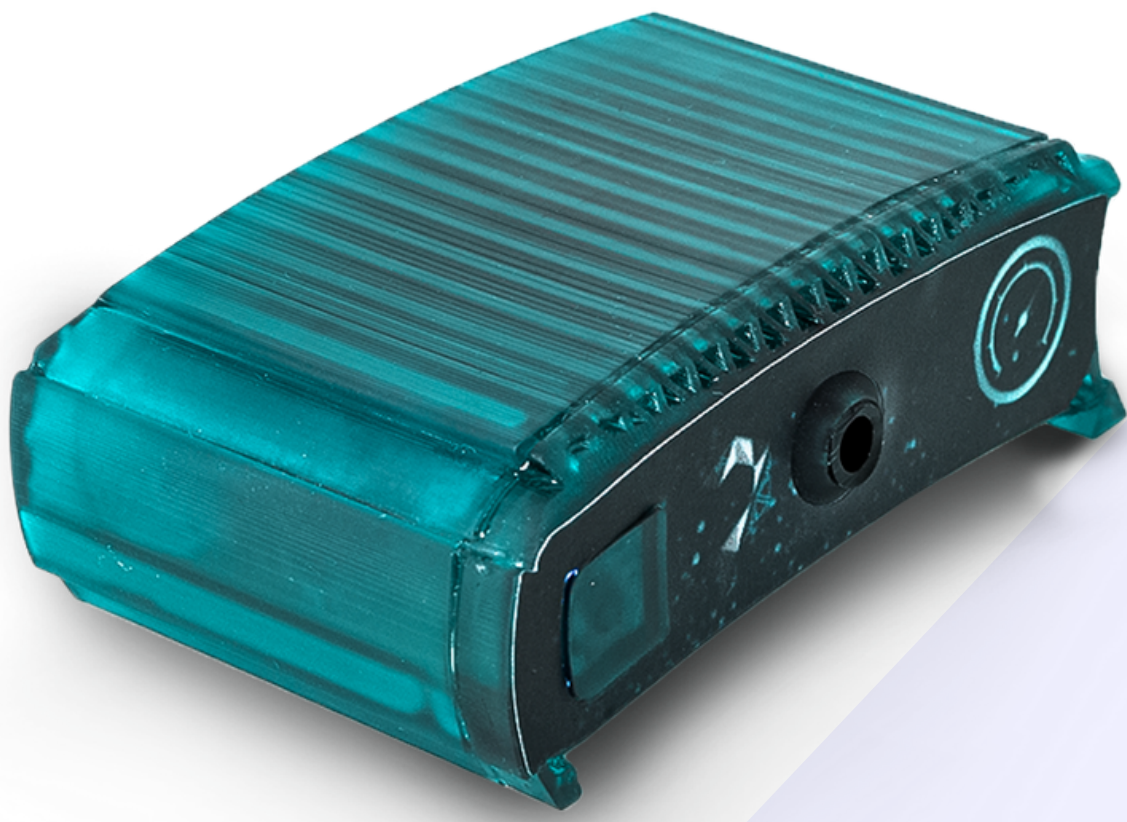


Explore

PhysLogger: Some exciting features

- Flexible: compatible with over 10 sensors and instruments
- Plug and play: versatile hardware combined with intuitive software
- Easy to configure yet powerful in function: modular and scalable
- The building block of an array of instruments, experiments, and applications!

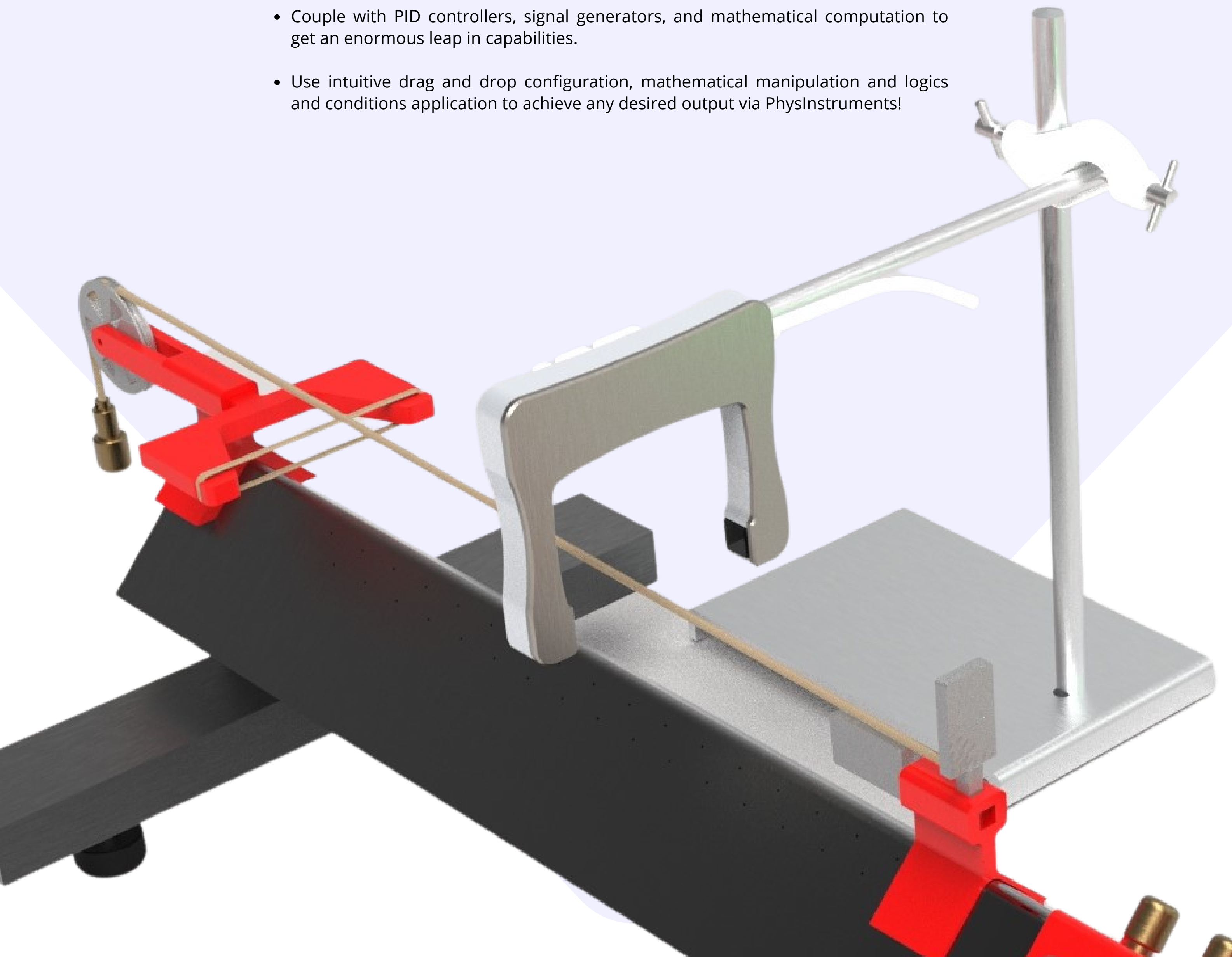




PhysInstruments:

*Endless Possibilities with a Family of Accurate Sensors
and Advanced Actuators*

- Integrate the PhysLogger with an array of sensing and actuating PhysInstruments to create and run complete systems with real-time measurement, analysis, and control.
- Couple with PID controllers, signal generators, and mathematical computation to get an enormous leap in capabilities.
- Use intuitive drag and drop configuration, mathematical manipulation and logics and conditions application to achieve any desired output via PhysInstruments!



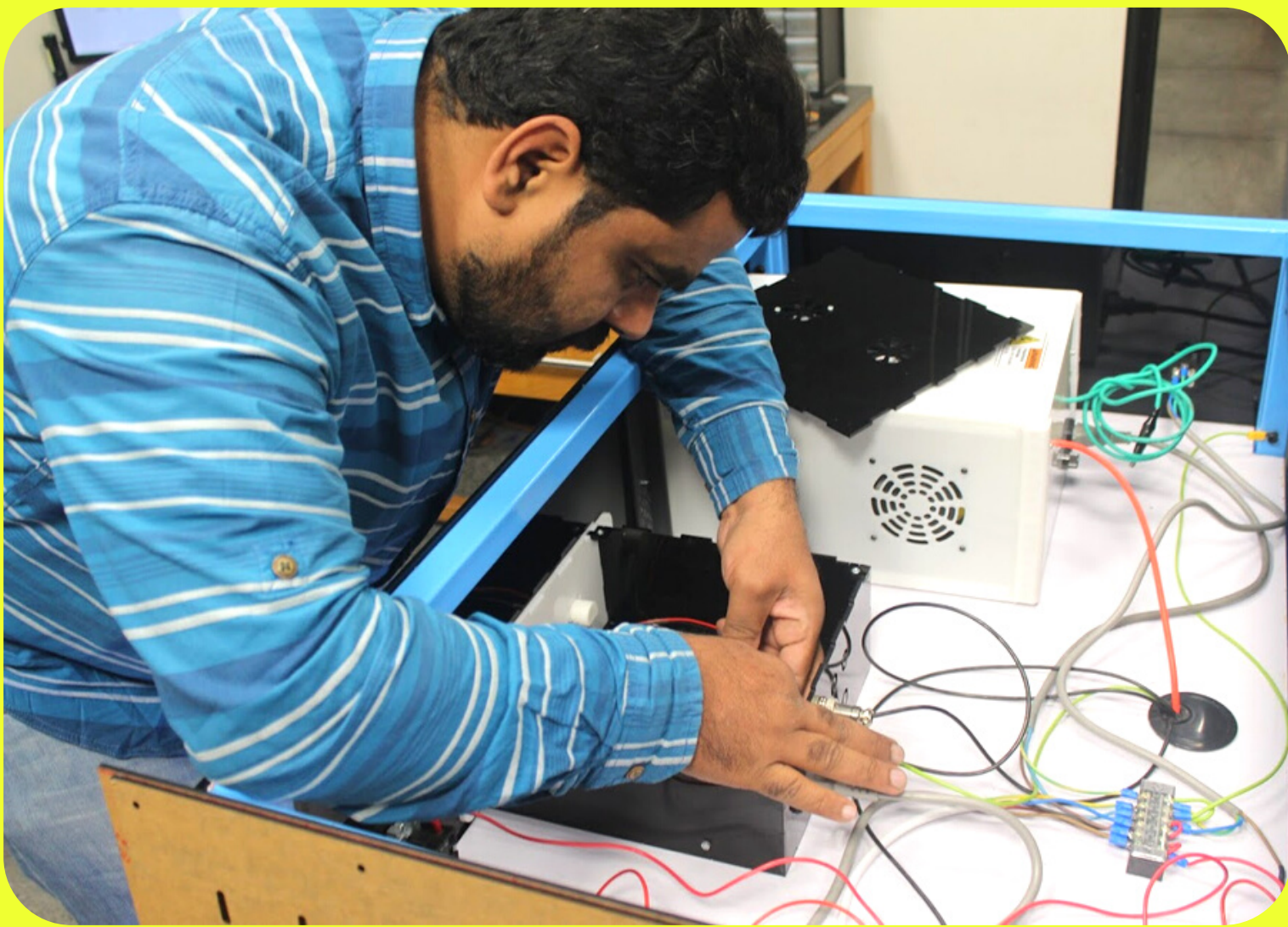
Who do we make our tools for?

These scientific tools are being used to inspire awe in students, educators and public across communities in Pakistan. Khwarizmi Science Society (KSS), the outreach partner of Qosain Scientific, annually organizes the Lahore Science Mela where a temporary science museum is set up for all citizens and also regularly visits farflung schools and conducts teacher training workshops. The gadgets and demonstrations of Qosain Scientific are a core part of these activities. This is an intertwined effort to intellectually empower the community of Pakistan.



What sets this instrument building initiative apart?

- Manufactured, operated, and marketed out of Pakistan: a first-of-its-kind convenient, quick, and cost-effective solution for local academia.
- Innovative yet affordable turnkey equipment: developing educational institutions in developing countries.
- Utilisation of local resources: elevating local manufacturing up the value chain with a potential of becoming key exporters in Central Asia.
- More than just manufacturers: a team of educators and physicists, equipped to train the end users.
- Partnered with the established and award-winning Physlab, LUMS: relevant expertise and a strong industry-academia linkage.
- An outreach partner in Khwarizmi Science Society: a vehicle of mass scientific inspiration and dissemination.

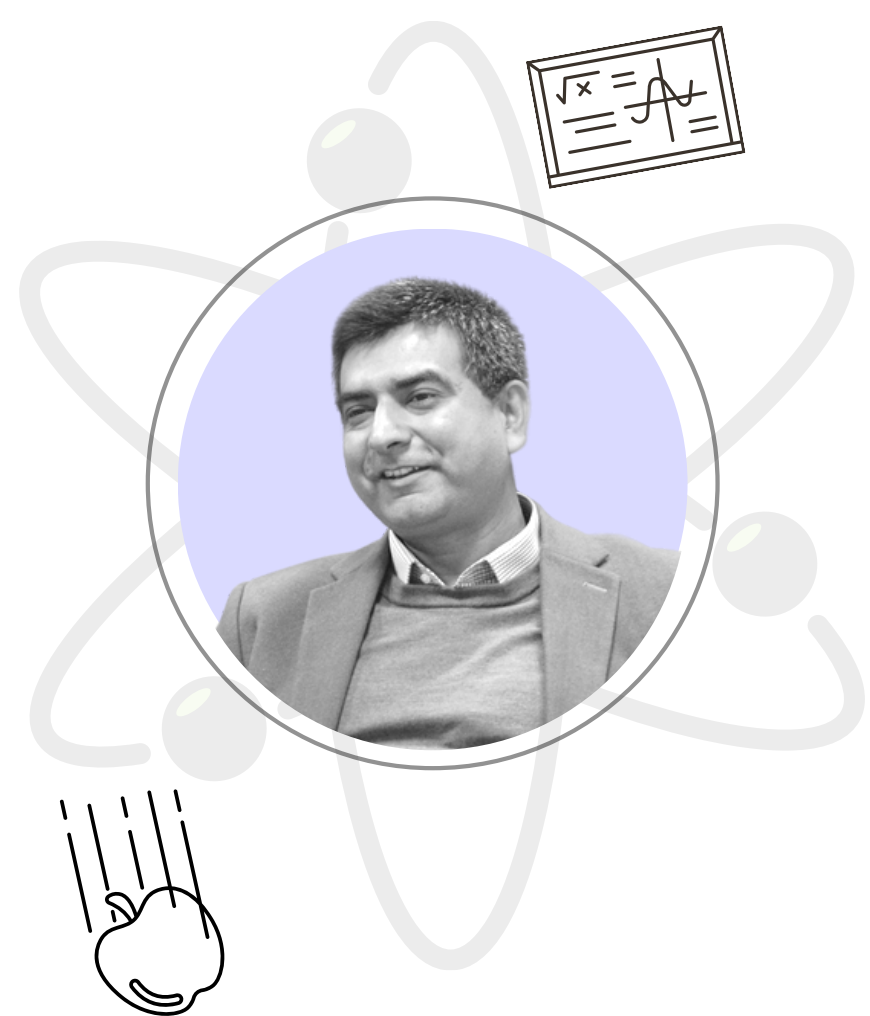


About

Dr. Muhammad Sabieh Anwar is Professor of physics, Ahmad Dawood Chair and Dean at the LUMS Syed Babar Ali School of Science and Engineering. Prior to joining LUMS SSE in 2007, Sabieh was a post-doc in chemistry and materials science at University of California, Berkeley and a PhD student, as Rhodes Scholar, at the Oxford University.

He is the recipient of the TWAS medal in physics for Pakistan in 2008 and the National Innovation Prize in 2015. He is member of the task force on the Culture of Science in the Muslim World, the National Committee on R&D constituted by the Higher Education Commission, and serves as Advisory Board Member of some Pakistani Universities.

Sabieh has published around eighty research articles in international journals including Science, the Physical Review series, Optics Express, Journal of the American Chemical Society and Proceedings of the National Academy of Science. He is the General Secretary of the Khwarizmi Science Society which is focused on the popularization of science at the grassroots levels. The Lahore Science Mela curated by Sabieh has attracted more than fifty thousand visitors over a span of six days in three years.



Websites

<http://physlogger.com/>

<https://www.qosain.pk/>

<https://physlab.org/>

<https://khwarizmi.org>

Get in touch

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