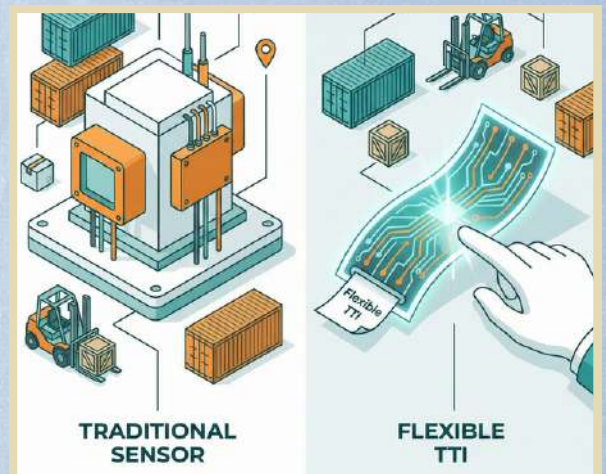
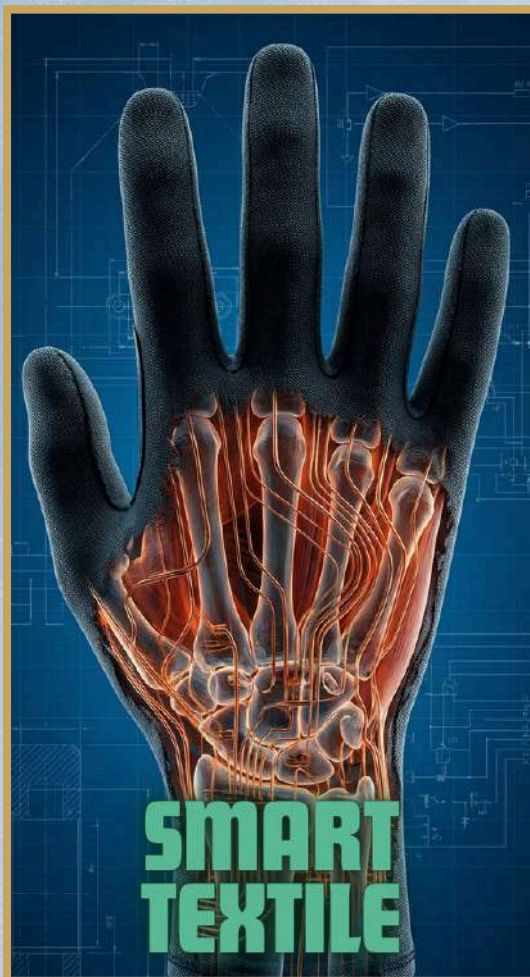


CHAMBER'S COMMUNICATOR

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**PREPARED BY RESEARCH & DEVELOPMENT DEPARTMENT
UNDER THE SUPERVISION OF SECRETARY GENERAL**

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الْأَمْرُ بِالْعَدْلِ

The trustworthy, honest
Muslim merchant will be
with the martyrs on the
Day of Resurrection.

Sunan Ibn Majah 2139



PRESIDENT'S MESSAGE

"Timely knowledge and innovation are key to sustaining competitiveness, and Chamber's Communicator continues to empower our members with both."

Dear Members,

It is my pleasure to present the 4th edition of SCCI's E-Magazine, "Chamber's Communicator." This edition focuses on innovation, skills development, and global engagement to support Sialkot's evolving business landscape.

The highlights include a Country in Focus on South Africa, in-depth insights into flexible time temperature indicators for food quality control, and recent advancements in thin-film wearable heater technologies. The edition also explores the China model and underscores the importance of establishing applied engineering and emerging technology institutions in Sialkot, demonstrating how strategic investment in skills drives sustainable economic growth. In addition, the article "Sialkot: The Digital Apprentice for Your Business" emphasizes the growing role of digital tools in enhancing efficiency and competitiveness, while "Importance of Intellectual Property for Business Growth" highlights how protecting innovation is essential for long-term business success.

At SCCI, we remain committed to equipping our members with relevant, forward-looking knowledge that fosters growth, encourages innovation, and ensures future readiness. I am confident this edition will serve as a valuable resource for informed and strategic decision-making.



Syed Ahtesham Maghar
President

SOUTH AFRICA

GEOGRAPHIC/DEMOGRAPHIC OVERVIEW

**Southern
Africa, divided
into 9 provinces**
REGION

**64
MILLION**
estimated, 2024
POPULATION

**\$400.3
Billion**
GDP 2024

**English & 11
African**
LANGUAGE

E-COMMERCE MARKET:

Internet Users: 78.9% penetration

Social Media: Facebook, WhatsApp, YouTube, Instagram have high penetration

Major platforms:

- Local Online Retailers
- Takealot.com
- Woolworths (Dash)
- Shoprite / Checkers (Sixty60)
- Pick n Pay
- Edgars / Jet

International Entrants

- Amazon.co.za
- Shein
- Temu

POPULAR PRODUCT CATEGORIES THROUGH ONLINE PLATFORMS:

- **Fashion & beauty**
- **Apparel**
- **Home appliances**
- **Electronics**
- **Personal Care**

STANDARDIZATIONS AND CERTIFICATIONS ON IMPORTS IN SOUTH AFRICA:

South Africa enforces strict product standards to ensure quality, safety, and consumer protection. Key points:

- **SABS & NRCS:** The South African Bureau of Standards (SABS), under the Department of Trade, Industry & Competition, issues Letters of Authority (LOAs) and enforces Compulsory Specifications via the National Regulator for Compulsory Specifications (NRCS). Regulated products (electronics, toys, vehicles, agrochemicals, etc.) require pre-import approval; importers are liable if goods lack the required mark.
- **Labeling & Language:** All products must be labeled in English. Technical goods, textiles, footwear, leather, food, cosmetics, and chemicals must meet labeling requirements including manufacturer, country of origin, ingredients, and safety instructions.
- **Food & Agriculture:** Food safety is regulated by the Department of Health, DAFF, and SABS. Imported food must meet microbiological and chemical standards, often requiring certificates from DAFF or accredited labs.
- **Drugs & Medical Devices:** SAHPRA controls pharmaceuticals and medtech. Imports require registration and SAHPRA-approved labeling and import permits.
- **Electronics/Electrical:** Most electrical and IT products require SABS or NRCS approval marks for safety and EMC compliance.
- **Conformity Assurance:** Some products (cosmetics, automotive parts, agrochemicals) need testing and Certificates of Conformity. Local representation or consultancy is recommended to navigate regulations.

KEY INTERESTING FACTS/OPPORTUNITIES:

South Africa is Pakistan's largest African trading partner and both governments are promoting SME/MBD trade. The country aims to increase fixed investment and promote trade, making it attractive for foreign firms including Pakistani exporters.

Participate in trade summits like the Pak-Africa Trade Summit to build networks.

In Pakistan-South Africa Trade Summit, the South African government highlights opportunities for Pakistani exports in agriculture/livestock (halal) and textiles/apparel. ICT and fintech are priorities as SA develop as a tech hub. Emerging energy and infrastructure projects including renewables, smart grids, and a R55 billion urban services program create demand for construction materials, engineering, and utilities, offering opportunities for Pakistani firms in roads, water, and urban services projects.

South Africans are increasingly shopping online, and Pakistani exporters can target fast-growing segments such as fashion, sportswear, and home goods. Major sporting events (e.g., cricket tours and upcoming international fixtures) and a strong passion for cricket and sports create opportunities for sports equipment and apparel.

Pakistan's textile industry is a global strength that can link with South African markets (retail, wholesale, fashion).

South Africa has the largest and most diversified economy in Africa, with robust infrastructure, financial, legal, and telecommunications sectors. It serves as a gateway to the wider African market of more than 1 billion consumers.

PAKISTAN SOUTH AFRICA TRADE

FINANCIAL YEAR (JUL-JUN 2025)

TOTAL TRADE

\$710.192

MILLION

Exports to SOUTH AFRICA: 183.23 USD (M)

Import from SOUTH AFRICA: 526.962 USD (M)

Source: State Bank of Pakistan

Description	Sialkot Exports to South Africa- 2024	South Africa's Imports from World-2024
Sports Wear	0.658	64.014
Cutlery & Crockery	0.891	28.964
Badges	0.012	4.879
Musical Instruments	0.005	5.405
Leather Products	2.054	282.627
Sports Goods	4.657	64.025
Gloves & Protective Equipment	3.719	25.616
Surgical Instruments	2.518	602.6
Shoes & Saddlery	0.149	770.016
Total	14.663 (M)	1.84 (B)

(SOURCE: TRADEMAP/WORLD BANK)
Sources: ITC calculations based on Pakistan Bureau Of Statistics
All values in US\$ Million for the Year 2024

The table presents Sialkot's export performance to the South Africa for the year 2024, amounting to US\$ 14.663 million, compared with the South Africa's total global imports of US\$ 1.84 billion, indicating considerable scope for enhancing bilateral trade in the above-mentioned sectors.

SOUTH AFRICA EXHIBITIONS/FAIRS

Trade fairs and exhibitions are vital for business growth, as they enable market expansion, global networking, and the creation of new opportunities. Below is a list of key fairs and exhibitions in South Africa.

NAMPO Harvest Day – Agriculture

www.nampo.co.za

Hotel and Hospitality Expo – Hospitality, Sports, Fitness, Kitchens & Bathrooms, Bed & Bedding, Interior Design & Textiles

www.thehotelshowafrica.com

Eid Shopping Festival 2026 (ESF) – Clothing & Apparel, Jewelry, Footwear, Fashion Accessories

eidshoppingfestival.co.za

Rand Show – Home & Décor, Beauty, Fashion

randshow.co.za

A-OSH Expo – Occupational Health & Safety

aosh.co.za

Allfashion sourcing, Cape Town – Textile & Fashion Trade Fair

allfashionsourcing.za.messefrankfurt.com

World Health Expo (WHX Cape Town) – Surgical Instruments & Medical Devices

www.worldhealthexpo.com

Pharma & Healthcare South Africa – Medical Devices, Diagnostics Laboratory & Surgical Equipment

www.pharmahealthcaresouthafrica.com

Thrive by World Health Expo – Sports wear, Sports/Fitness Goods, Training equipment, Sports Fashion, Women & Health

www.worldhealthexpo.com





IMPORTANT LINKS FOR INFORMATION

High Commission for Pakistan

Pretoria, South Africa

www.mofa.gov.pk/pretoria-south-africa

Trade Mission of Pakistan,

Virginia Avenue South Africa

www.mofa.gov.pk/southafrica

High Commission of South Africa,

Islamabad

www.gov.za

For Business Visa

www.vfsglobal.com

South Africa's Investment

Promotion Agency

www.investsa.gov.za

Department of International

Relations and Cooperation's

dirco.gov.za/

For Determination of

Taxes/Duties/ Import Tariffs

www.sars.gov.za/customs-and-excise/duties-and-taxes



THE CHINA MODEL AND THE ESTABLISHMENT OF UNIVERSITY OF APPLIED ENGINEERING AND EMERGING TECHNOLOGIES IN SIALKOT: WHY INVESTMENT IN SKILLS DECIDES ECONOMIC WINNERS



China did not become a technology powerhouse by accident. It made a Deliberate, sustained choice: to invest heavily in education, research, and applied skills, long before the results were visible. While others debated short-term gains, China built long-term capacity.

Today, that choice is paying off. China now spends almost as much on research and development as the United States. Its universities produce tens of thousands of engineers and researchers every year, feeding industries that lead the world in electric vehicles, batteries, advanced manufacturing, and clean energy. This is not coincidence. It is policy in action.

Equally important is how China educated its workforce. Instead of relying only on traditional universities, it modernized technical and vocational education at scale. Millions of students are trained in applied technologies, precision manufacturing, materials science, automation, and emerging fields directly linked to industry needs. Factories and classrooms are connected. Skills are updated continuously. Productivity follows.

Now contrast this with Sialkot.

Sialkot is one of Pakistan's most important export cities, a place that has earned global recognition through hard work, craftsmanship, and entrepreneurship.

Yet today, its industries are under strain. The challenge is no longer market access or demand. It is capability. A growing shortage of skilled technicians, engineers, and technologists is slowing modernization, limiting innovation, and weakening competitiveness at a time when global manufacturing is moving faster than ever.

Factories cannot upgrade technology without people who know how to run it. Products cannot move up the value chain without engineers who can design, test, and improve them. Without closing this skills gap, even the strongest export base begins to erode.

This is why the University of Applied Engineering and Emerging Technologies matters....not just to Sialkot, but to Pakistan's export future.

Initiated by the Sialkot Chamber of Commerce and Industry, this university is designed on the very principles that powered China's rise. It is not meant to be another theoretical institution. It is conceived as an applied, industry-linked university focused on engineering, emerging technologies, problem-solving, and real factory needs. Its purpose is simple: to produce graduates who strengthen industry from day one. The project has vision. It has land. It has international academic linkages. What it lacks is time and timely completion.

“
China understood early that skill are infrastructure. Universities are economic assets. Investment in ais not subsidy it is strategy.

Delays in funding are not just administrative setbacks. They carry economic consequences. Every year this university remains incomplete is a year in which Sialkot's industries fall further behind global competitors. It is a year of lost skills, lost productivity, and lost export potential.

China understood early that skills are infrastructure. Universities are economic assets. Investment in people is not a subsidy—it is strategy.

Sialkot has taken the initiative. It has shown foresight. Ensuring this project reaches completion is not a concession to one city; it is recognition of Sialkot's role as a backbone of Pakistan's export economy.

Nations that invest in skills shape the future. Those that delay pay the price later. The lesson from China is clear. The question is whether we are ready to act on it.

DEVELOPMENT OF FLEXIBLE ROBUST THIN FILM WEARABLE HEATER

INTRODUCTION

Cold-weather gloves & socks require **lightweight heating**

Existing solutions are:

- Bulky & rigid
- Power intensive
- Thermally non-uniform

PROBLEM STATEMENT

- Limited flexibility in existing heated gloves & socks.
- High power consumption and short battery life.
- Poor thermal uniformity and user discomfort.
- Designs not suitable for mass-scale textile integration.

Result: Current solutions fail to meet ergonomic, electrical, and commercial requirements simultaneously.

PROJECT OBJECTIVES

- Fabricate a **flexible thin-film heating element** for textiles.
- Maintain **human comfort temperature (35–42 °C)**.
- Operate at **10 V DC** with **3–4 hours battery life**.
- Perform reliably in **cold & humid environments**.
- Enable **wireless temperature control**.
- Develop a **mass-scalable fabrication approach**.

DESIGN PHILOSOPHY

(Literature-Driven)

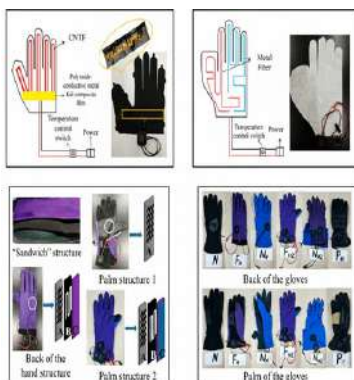
Based on:

- Printed thin-film heater concepts.
- CNT film & metal fiber heated gloves.

Key insights from literature:

- Thin-film heaters → uniform heating
- CNT films → flexibility & comfort
- Metal fibers → fast heating, lower softness
- Parallel heater paths → reliability

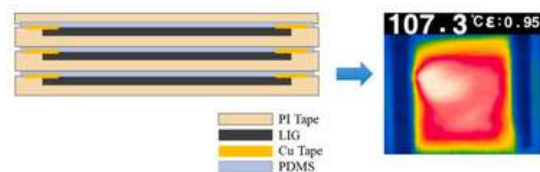
Sandwich textile structures reduce heat loss.



APPLICATIONS



HEATING ELEMENT



Making series or parallel connections by stacking multiple LIG layers

Apply voltage and evaluate thermal performance

PROTOTYPE DEVELOPMENT



BASE LINE EXPERIMENTATION

Material & Electrical Characterization

- Nichrome resistive element.
- Resistance measurement & power estimation.
- Joule heating validation (V–I–R behavior).

Thermal Response Testing

- Voltage-controlled heating (≤ 10 V).
- Temperature rise vs time.

Repeatability over multiple cycles



KEY FEATURES



RELEVANT INDUSTRIES



EXPECTED OUTCOMES

- ✓ Novel flexible heater architecture.
- ✓ Verified low-power thermal performance
- ✓ Scalable fabrication .
- ✓ Prototype-ready textile heating element.
- ✓ Pathway for technology transfer & commercialization.

CONTACT US AT:

PI name: Dr. Ali Turab Jafry (ali.turab@giki.edu.pk)

CoPI: Prof. Dr. Khalid Rahman (Printed Electronics Lab, GIKI)

Dr. Faiza Jan Iftikhar (NUTECH)

Anas Ali (gme2597@giki.edu.pk)

Industrial Partner: Intermarket Knit Pvt Ltd.



Mubashar Ali¹, Hamza Abbas¹, Hammas Ullah¹ and Ali Turab Jafry^{1†}

¹. Faculty of Mechanical Engineering, GIKI Institute of Engineering Sciences and Technology, Topi, Pakistan

† Biofuel and Microfluidics Laboratory- ali.turab@giki.edu.pk,

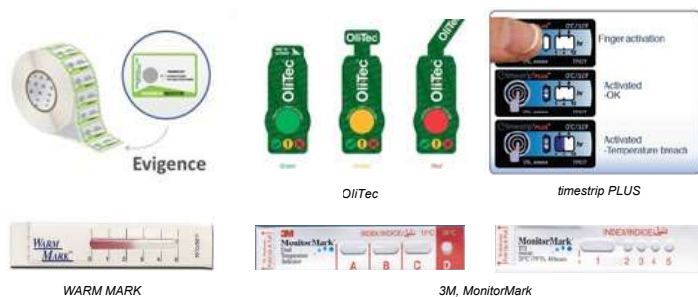
Abstract

Time temperature indicator (TTI) is a device which monitor the shelf life of perishable food products from cold storage to consumption. Globally about one-third of fresh fruits and vegetables (FFVs) are discarded as waste because their quality dropped during transit. In most of the cases, these losses happen because of non-optimized handling during supply chain and not a proper sensing device to monitor the quality of food being transported from production all the way to the consumer. So, in this study we will develop the high-resolution flexible time temperature indicator (FTTI) for food quality control by using CO₂ laser and thermal press machine to laminate the thermoplastic films. We will also incorporate FTTI with a sole and easy actuating mechanism made of thin PET film to pull and actuated TTI. There are three fatty acids like oleic, octanoic and decanoic acid will use as working fluid for different testing temperatures of 5, 15 and 30 °C, respectively. To optimize or make a homogenous flow, the device has been developed using a two-dimensional fan shaped series of profiles which will help linearize the timescale for a better readability by the consumer.

Introduction

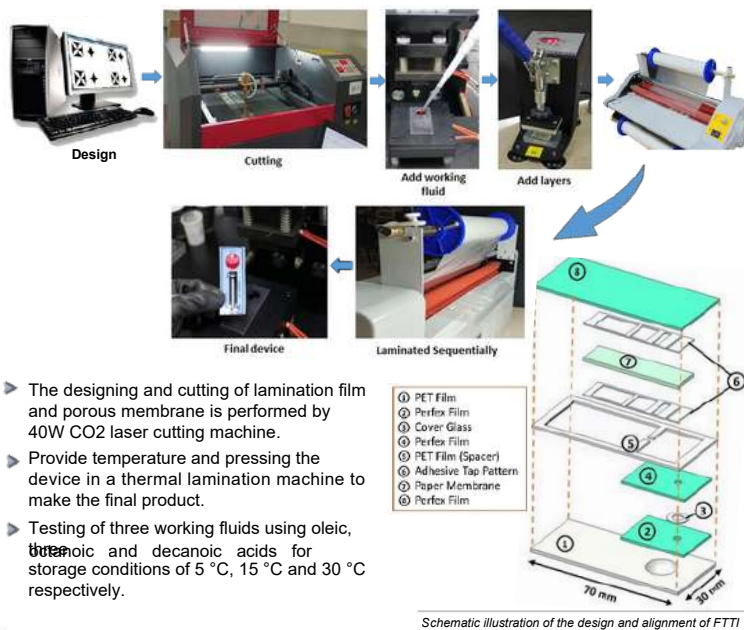
- Although paper based sensor have been commercialized for indicators, these are **not flexible** and not easy to control.

time-temperature



Materials & Method

Fabrication Process of FTTI



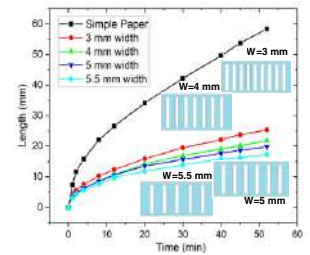
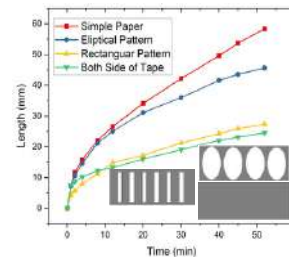
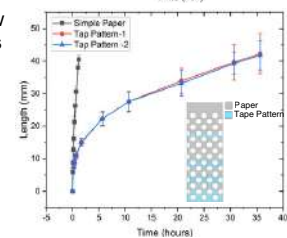
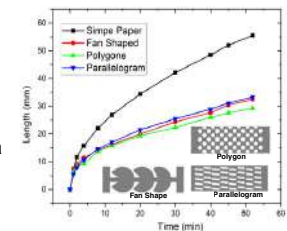
- The designing and cutting of lamination film and porous membrane is performed by 40W CO₂ laser cutting machine.
- Provide temperature and pressing the device in a thermal lamination machine to make the final product.
- Testing of three working fluids using oleic, octanoic and decanoic acids for storage conditions of 5 °C, 15 °C and 30 °C respectively.

Results

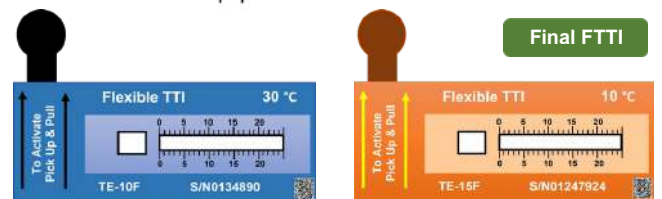
- Flow modelled by Lucas-Washburn equation for porous media:

$$l = 2 \sqrt{\frac{k \gamma \cos \theta}{\phi \mu D}} t$$

- To make a homogenous flow, we fabricated a two-dimensional sequential fan-shaped channel with decreasing angles to achieve constant wicking flow rate.
- By adding **polygon** in paper channel, the flow velocity is reduced due to additional **tortuous** nature of the flow path.
- Maximum delay time of **38 hours** is achieved by using polygon and tape pattern in paper channel.
- Tape barrier is created in paper channel by decreasing order of 5mm-2 mm with gap width of 3⁰mm - 3³mm.



- We used elliptical and rectangular tape pattern to reduce the flow velocity of working fluid and increase the delay time of the device. But, significant result is achieved by **rectangular tape pattern**.
- Increasing the width of **tape pattern**, delay time also increase because tape pattern creates resistance to fluid flow in paper channel.



Conclusion

- The important features of this technique are its simplicity, low cost, flexibility, and reliability.
- The device cost is only **Rs/-5** which is highly less as compared to the other commercial TTI: cost of (SKU: THGSEN006) by 3M is **Rs/-833** (\$3.99).
- The device time is **38 hours** with oleic acid by using novel technique of **polygon and scotch tape pattern** in paper channel.

Acknowledgement

- We appreciate the support provided by the project titled "High resolution flexible time-temperature indicator (FTTI) for food quality control" funded by Higher Education Commission (HEC), Pakistan under the Technology Transfer Support Fund (No. TTSF-74).

SIALKOT: THE DIGITAL APPRENTICE FOR YOUR BUSINESS

Sialkot, the “Golden Triangle” of craftsmanship, is renowned for exporting surgical instruments, sports goods, leather, musical instruments, and cutlery. As traditional trade methods fade, the world is shifting toward Autonomous Exporting, where digital tools operate 24/7 to connect with buyers and ensure quality.



What is AI?

Think of Artificial Intelligence (AI) not as a robot, but as a “digital master apprentice”. Just as a young worker learns to feel the leather or curve a blade, AI uses data to learn. It helps you design, write, and sell faster than a human ever could.

Global and Local Success

Big brands like Under Armour use AI to design better sportswear. In Sialkot, this is already happening. A local sports equipment maker used AI quality checks to reduce product returns by 45%. Another surgical workshop used AI to find new buyers in Japan and Brazil, increasing revenue by 300% in one year.

Solving Future Problems

The biggest future challenge for Sialkot is strict European laws about “Green” manufacturing and sustainability. If you cannot prove your factory is eco-friendly, you may lose customers. AI acts as a “shield,” automatically writing these complex reports for you.



How to Start (Simple Tools)

- 1. Ideas & Writing:** Use ChatGPT. It is like a Swiss Army knife that writes your emails, plans your business, and answers customer questions.
- 2. Branding:** Starting a new badge or glove business? Use Looka or Namelix to create a professional name and logo in minutes.
- 3. Quality Control:** For cutlery or surgical tools, use AI cameras (like META-ai) to spot tiny defects instantly, ensuring 100% accuracy.

Start small. Pick one tool, like a chatbot to answer customers, and build from there. AI allows small Sialkot workshops to have the power of big global corporations.

“AI will be a powerful tool that expands the possibilities of what we, as craftspeople, can create, but human ingenuity and intuition will still be responsible for pushing boundaries and envisioning the truly novel.”

ANA ARRIOLA-KANADA

IMPORTANCE

OF INTELLECTUAL PROPERTY (IP) FOR BUSINESS GROWTH

INNOVATION
INCENTIVE

INVESTMENT
PROTECTION

QUALITY
ASSURANCE

GLOBAL TRADE
FACILITATION

CULTURAL
PRESERVATION

◆ Why Intellectual Property (IP) Matters – Now More Than Ever

In today's globalized and innovation-driven market, Intellectual Property (IP) is a vital tool for businesses. It offers legal protection to your ideas, products, and brand — turning your creativity into a commercial asset.

💡 What is Intellectual Property (IP)?

- ⇒ Trademark – Protects business names, logos, slogans
- ⇒ Patent – Secures inventions and innovative processes
- Industrial Design – Safeguards product shape, style, look
- Copyright – Covers written content, designs, media
- Geographical Indication (GI) – Recognizes products linked to a region (e.g., Sialkot's sports and surgical goods)

✓ Why Register Your IP?

- ✓ Protection from imitation and counterfeiting
- ✓ Builds brand trust and recognition
- ✓ Increases product value for exports
- ✓ Encourages innovation and product development
- ✓ Legal tool to expand globally

Common Misconception

Many small businesses wrongly believe that **Intellectual Property (IP) protection is only needed by large companies**, but in reality, **every business—regardless of size—owns valuable assets** like brand names, logos, product designs, or innovations that can be copied or misused, needs IP protection.

Without registration, others can **legally imitate or even claim ownership** of your product, putting your business at serious risk. **Securing your IP** not only protects your ideas but also strengthens your market position and future growth potential.

IP protection is not optional—it's essential for all businesses.

Respected Members, “Innovation without protection is risk”

This Chamber urges all entrepreneurs, exporters, and manufacturers to engage with the Intellectual Property Organization of Pakistan (IPO-Pakistan, 🌐 Website: www.ipo.gov.pk for timely registration and guidance.

THE SIALKOT CHAMBER OF COMMERCE & INDUSTRY

Chamber's Communicator

scci.com.pk

