HKB
HESHAM BIN DAYEL TECH

Launch of revolutionary single, washable smart Shirt of the new-age players for Pain & Fatigue ™ measurement

(Patent Pending)

Artificial Intelligence Center of Excellence of **HKB Tech**

1. Research & Development of generative- AI , Large Language Models (LLM) and the other emerging technologies
2. Development of technology skills of Saudi women
   - Generative AI
   - Large Language Models (LLM)
   - AI & Machine Learning
   - Internet of Things (IoT)
   - Conversational AI/ DeepTech
   - Metaverse, AR/VR
   - Smart Cities
   - Blockchain Development
   - Cloud Computing
   - Computer Vision & Image Recognition
   - HealthTech/ EdTech
   - Web 3

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EXECUTIVE SUMMARY

PRODUCT DESCRIPTION

- Our product is an IoT-based Smart Shirt designed to measure Pain & Fatigue levels by leveraging multiple factors including the physiological parameters of athletes in real-time during training sessions and competitive events and arrive at accurate fatigue and pain detection.
- The Smart Shirt integrates advanced sensors and wearable technology to capture key metrics such as sweat, body temperature, movement patterns, heart rate, respiratory rate, and blood pressure.
- These data points are transmitted wirelessly to a centralized monitoring system, providing coaches, trainers, and medical staff with actionable insights into athlete fatigue and pain levels.

UNIQUE SELLING PROPOSITION

- The unique selling proposition of our Smart Shirt lies in its ability to offer real-time, objective monitoring of athlete health and performance metrics. Unlike traditional subjective assessment methods, our Smart Shirt provides accurate, continuous data on Pain & fatigue levels and physiological parameters, enabling proactive intervention and optimization of training strategies.
- By leveraging IoT technology, our solution empowers coaches and medical professionals to make data-driven decisions, reduce injury risks, and enhance athlete performance outcomes.

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TECHNOLOGY

Sensor Technology: Advanced biosensors embedded within the fabric of the shirt measure sweat, body temperature, movement patterns, heart rate, respiratory rate, and blood pressure. This also further infers to our revolutionary pain & fatigue measurement.

IoT Connectivity: Wireless communication protocols such as Bluetooth Low Energy (BLE) or Wi-Fi enable seamless transmission or SIM Based transmission of data from the Smart Shirt to a centralized monitoring system.

Cloud Computing: Data collected from the Smart Shirt is securely stored and processed in the cloud, leveraging cloud computing infrastructure for scalability, reliability, and real-time analytics.

Data Analytics: Machine learning algorithms and predictive analytics tools analyze the collected data to identify patterns, trends, and anomalies in athlete vital signs, enabling actionable insights and personalized recommendations.

Mobile Application: A user-friendly mobile application allows coaches, trainers, and medical staff to monitor athlete data in real-time, set thresholds for alerts, and access historical performance metrics for individual athletes or entire teams.

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SOLUTION

ECG Monitor

Oxygen Level

Pulse Rate

Fatigue/
Activity Level

Pain Level

Blood Pressure

Signal Transmitter

Sweat/
Temperature

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ARCHITECTURE

EDGE

Devices

Sensors

LoT Gateway

Cloud LoT

Data System

Signal View

Smart-Phone

Signal View

Processing Server
At Medical Facility

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FEATURES

Advanced Sensor Integration: Incorporating cutting-edge sensors to leverage signs and physiological parameters.

Wearable Technology: Designed as a comfortable and unobtrusive garment for athletes to wear during training and competition.

Real-time Data Capture: Constantly gathering data on sweat, body temperature, and movement patterns during activities.

Wireless Transmission: Transmitting data wirelessly to a centralized monitoring system for instant analysis.

Accurate Metrics: Providing precise measurements of athlete performance and physiological responses.

Customizable Alerts: Configurable alerts for coaches and trainers based on predefined thresholds for fatigue and pain.

Long Battery Life: Ensuring extended usage periods without the need for frequent recharging.

Durable Design: Constructed with high-quality materials to withstand rigorous training sessions and frequent use.

User-friendly Interface: Intuitive software interface for easy access to data and insights.

OUTCOMES

Improved Performance

Enhancing athlete performance through data-driven insights into physiological responses.

Injury Prevention

Identifying signs of fatigue and pain early to prevent injuries and overexertion

Optimized Training

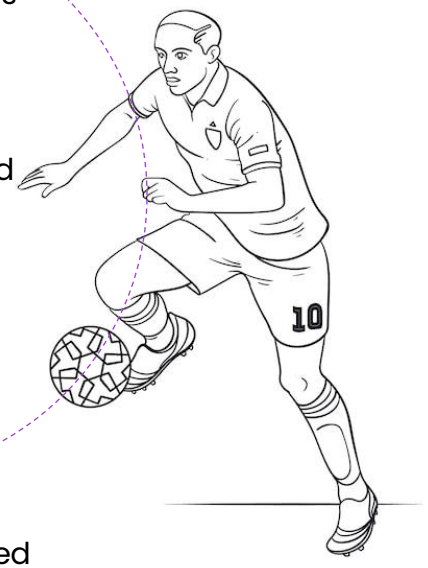
Tailoring training regimens based on real-time feedback to maximize effectiveness.

Enhanced Recovery

Facilitating quicker recovery times by monitoring fatigue levels and adjusting workload accordingly.

Strategic Decision-making

Empowering coaches and trainers with actionable data to make informed decisions during training sessions and competitions.



Data-driven Insights

Generating valuable insights into training effectiveness and physiological responses for continuous improvement.

Increased Safety

Ensuring the well-being of athletes by promptly addressing signs of fatigue or discomfort

Competitive Advantage

Gaining a competitive edge by leveraging state-of-the-art technology for athlete optimization.

Long-term Health Monitoring

Establishing baseline metrics for long-term monitoring of athlete health and performance trends

Personalized Coaching

Providing individualized feedback and recommendations based on each athlete's unique physiological profile.

ARCHITECTURE

Improved Performance

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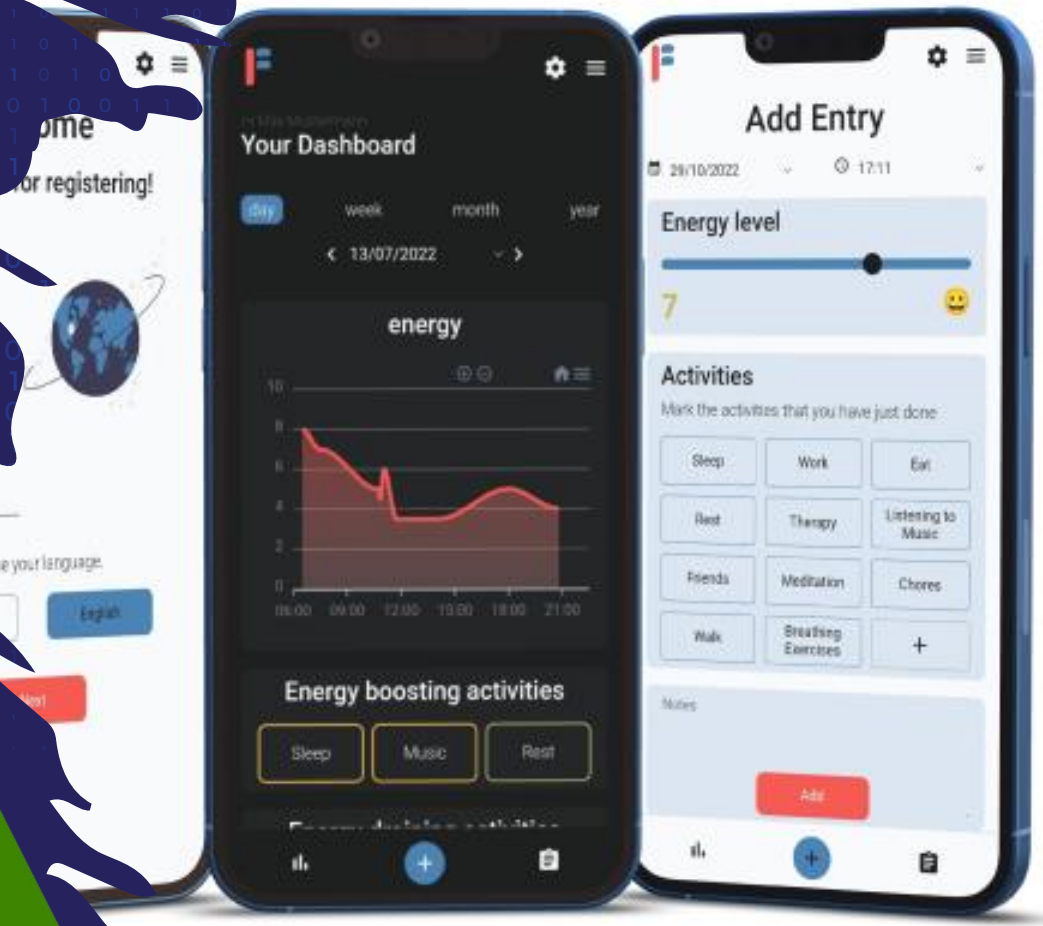
FUTURE VIEW

tigue Diary



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