



Own Wearable Network

Reeth Bhasin,

Intern, Tactus Ventures INC.
July 11th, 2024 – July 26th, 2024.

Tactus Ventures Inc. presents OWN Smart Shoes: a patented technology that integrates advanced health monitoring through cutting edge sensors, all embedded seamlessly in the comfort of a footwear.

OWN Shoes is transforming the wearable industry and the way we track and manage wellness. With advanced machine learning and AI, these smart shoes offer precise, personalized, and continuous health insights—ushering in a new era of proactive health management.

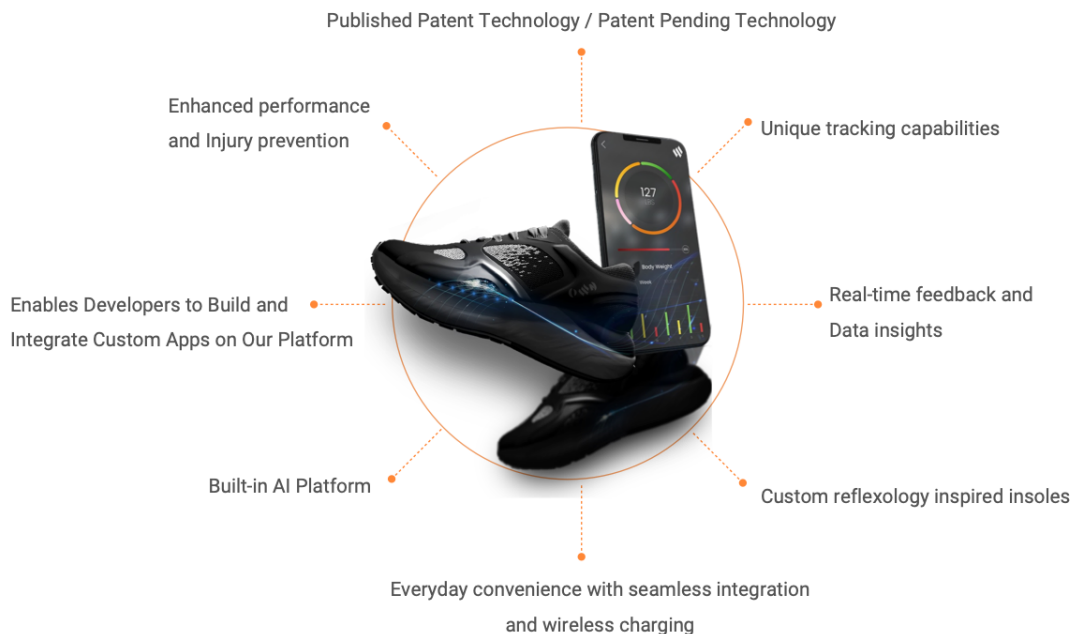


TABLE OF CONTENTS

01. INTRODUCTION..... 3

02. OWN SMART SHOES: PIONEERING THE FUTURE OF WEARABLE HEALTH
TECHNOLOGY 4

03. DIRECT USER BENEFITS 6

04. INNOVATION AND FORWARD-THINKING 9

05. PROBLEM ADDRESSED 11

06. NEED FOR THE SOLUTION 13

07. LEVERAGING MACHINE LEARNING AND AI IN OWN SHOES 15

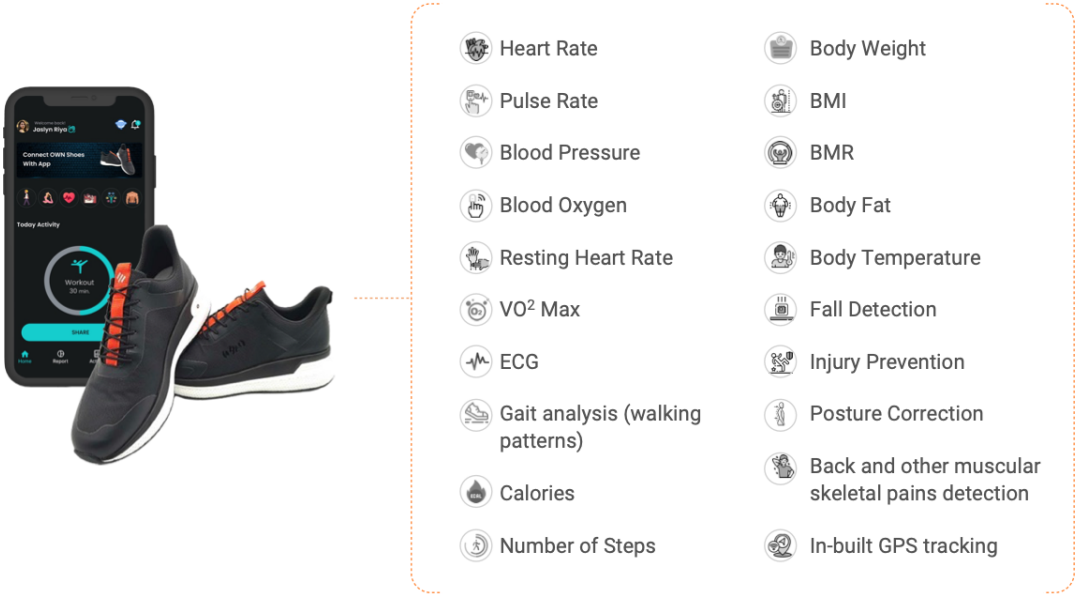
08. DEEPENING HEALTH INSIGHTS WITH PREDICTIVE ANALYTICS 17

09. CONCLUSION 19

About OWN Smart Shoes

OWN Smart Shoes: Pioneering the Future of Wearable Health Technology

At the intersection of technology and wellness, OWN Shoes is redefining what it means to be smart footwear. By embedding sophisticated health and fitness monitoring capabilities directly into shoes, we are transforming everyday footwear into an essential tool for health management and fitness tracking. Our innovation makes it easier than ever to integrate wellness monitoring into the fabric of daily life. OWN Smart Shoes track the following:



- Heart Rate
- Pulse Rate
- Blood Pressure
- Blood Oxygen
- Resting Heart Rate
- VO² Max
- ECG
- Gait analysis (walking patterns)
- Calories
- Number of Steps
- Body Weight
- BMI
- BMR
- Body Fat
- Body Temperature
- Fall Detection
- Injury Prevention
- Posture Correction
- Back and other muscular skeletal pains detection
- In-built GPS tracking

Vision and Mission Our mission at OWN Shoes is to redefine the boundaries of wearable technology by incorporating advanced health monitoring tools directly into your everyday footwear. Our vision is a future where everyone has access to seamless health monitoring integrated as effortlessly into their lives as their choice of footwear. This vision drives us to create shoes that not only provide exceptional comfort and style but are also packed with smart technology to enhance your health and well-being.

Advanced Technology for Everyday Wellness

OWN Shoes are designed with precision to be more than just footwear; they are a comprehensive wellness monitoring system:

- **Comprehensive Health Metrics:** With sensors to measure heart rate, step count, body temperature, gait analysis and other parameters mentioned above, OWN Shoes offer a full spectrum of health monitoring that typically requires multiple devices.
- **Robust Connectivity:** Built with the latest Bluetooth 5.3 technology, our shoes ensure a stable and continuous connection with smartphones, tablets, and other devices across both Android and iOS platforms, facilitating real-time data transfer and analysis.
- **User-Centric Design:** The OWN mobile app acts as your personal health dashboard, providing insights and visualizations of your health data. It allows for personalized settings and tracks your progress towards fitness goals, adapting recommendations based on your activity levels and health indicators.



Direct User Benefits The integration of this technology into everyday footwear eliminates the need for additional wearable devices, simplifying the user experience without sacrificing functionality. This approach not only enhances convenience but also increases the likelihood of consistent health monitoring, providing users with timely insights and fostering proactive health management.

Innovation and Forward-Thinking At OWN Shoes, our commitment to innovation is unwavering. We continuously explore emerging

technologies and materials to enhance the smart capabilities of our footwear. Our proactive approach ensures that our customers benefit from the most advanced solutions in wearable health technology, today and tomorrow.

Embark on a Healthier Path Join us on a journey to better health with OWN Shoes at your feet. Experience the fusion of technology and practicality, where every step is an opportunity to enhance your wellness. With OWN Shoes, your journey towards a healthier lifestyle is just a step away.



Problem Addressed

Overcoming the Limitations of Conventional Health Monitoring

As health consciousness rises globally, traditional approaches to monitoring health metrics increasingly clash with the dynamic lifestyles of today's population. Traditional wearables like fitness bands and smartwatches demand users to adopt additional gadgets, which often disrupt daily activities due to their need for frequent charging, potential discomfort, and aesthetic discordance with personal style.

Challenges with Existing Wearable Technologies While existing wearables provide valuable health insights, they introduce several challenges that can hinder their effective use:

- **Discomfort and Intrusiveness:** Extended wear of devices around the wrist or elsewhere can be uncomfortable, particularly during physical activities or sleep, deterring continuous use.
- **Dependency on User Compliance:** The effectiveness of traditional wearables hinges on the user's commitment to regularly charge and wear these devices—a barrier that can lead to inconsistent data collection.
- **Style Limitations:** Many users resist adopting wearables due to their often clunky and conspicuous designs, which may not seamlessly integrate with personal or professional attire.

The Smart Footwear Innovation by OWN Shoes OWN Shoes directly addresses these issues by integrating advanced health monitoring technologies into the daily essential—footwear. This integration ensures that users engage with their health metrics as naturally as they slip on their shoes, eliminating many barriers associated with traditional wearables.

Advantages of Integrating Technology into Footwear

- **Uninterrupted Health Monitoring:** OWN Shoes ensure continuous, automatic health data tracking from the moment the user steps into their shoes. This consistent data collection is vital for accurate health assessments and trend analysis.

- **Seamless and Unobtrusive:** The technology is invisibly integrated into the shoes, offering a zero-hassle experience with no additional gadgets required, preserving the user's comfort and style.
- **Superior Data Accuracy:** Footwear provides a stable base for sensors, improving the precision of data collected compared to wrist-based or loose-fitting devices. This is particularly important for accurate step counting, gait analysis, and physiological measurements like body temperature and weight.

Transforming Health Tracking with OWN Shoes

OWN Shoes redefines the integration of health technology into everyday life by leveraging the ubiquity of footwear. This novel approach removes traditional barriers associated with wearable technology, making continuous health monitoring a seamless part of daily attire. By ensuring compliance through convenience and design integration, OWN Shoes makes personal health management achievable for everyone, setting a new standard in the wearable technology space.



Need for the Solution

Seamless Health Monitoring: A Modern Necessity

In an era where health consciousness is at an all-time high, the demand for continuous, seamless health monitoring is more pressing than ever. Individuals are increasingly proactive about their health, seeking solutions that integrate effortlessly into their daily routines without compromising comfort or convenience.

Evolving Health Monitoring Needs The shift towards preventive health care has emphasized the importance of having continuous access to health data. This ongoing monitoring helps in early detection of potential health issues, facilitates tracking of fitness progress, and supports lifestyle adjustments based on precise health metrics.

Challenges with Traditional Methods Traditional health monitoring methods, such as periodic health check-ups and manual tracking, offer only intermittent insights and often miss transient but critical health changes. Conventional wearable technologies, while useful, frequently disrupt daily routines due to their need for regular maintenance and active user engagement.

Why Footwear-Based Monitoring Makes Sense Integrating smart technology into footwear taps into the daily use of a common item, ensuring that health monitoring is as natural as putting on shoes in the morning. OWN Shoes harnesses this routine to deliver a powerful health monitoring tool that operates unobtrusively.

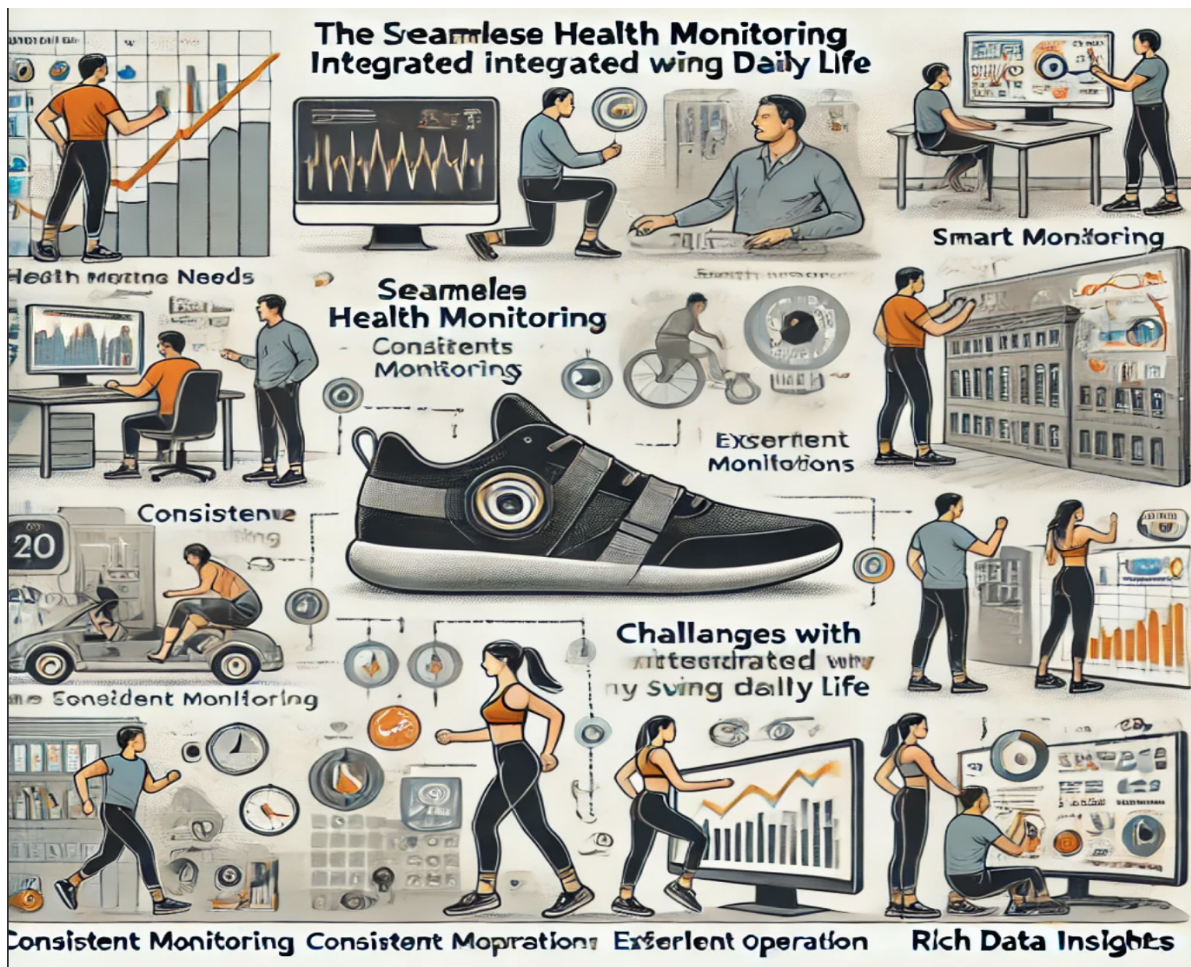
Key Advantages of Smart Footwear

- **Consistent Monitoring:** Shoes are an essential part of daily wear, ensuring that the health monitoring tool is always in use, thus providing continuous data collection.
- **Effortless Operation:** Smart footwear operates autonomously, requiring no input from the user after the initial setup. This "set and forget" feature allows the technology to collect and analyze data in the background.

- **Rich Data Insights:** Positioned at the point of contact with the ground, smart shoes are ideally placed to collect data on a range of metrics like steps, gait, and posture, offering a comprehensive view of the user's physical status.

Aligning Technology with Lifestyle By embedding advanced health monitoring capabilities into an everyday item, OWN Shoes lowers the barriers to continuous health tracking, making it accessible to a wider audience. This integration aligns seamlessly with contemporary lifestyle demands, providing health insights with unparalleled ease.

Conclusion The need for the innovative solution offered by OWN Shoes is undeniable. It answers the call for an integrated, non-intrusive method of health monitoring that fits effortlessly into the fabric of modern life. With OWN Shoes, users can step into a future where health monitoring is invisible yet omnipresent, keeping them informed and in control of their health every step of the way.



Leveraging Machine Learning and AI in OWN Shoes

Empowering Health Monitoring with Advanced Technologies

OWN Shoes redefine the integration of technology in everyday life by harnessing the power of Machine Learning Models (MLM) and exploring the potential of General Artificial Intelligence (AI). These foundational technologies enhance the smart footwear's ability to provide personalized, accurate, and predictive health insights.

Machine Learning Models (MLM) MLMs are sophisticated algorithms that enable systems to learn from data, improve responses, and make informed decisions without explicit programming for every scenario. In OWN Shoes, MLMs play a critical role:

- **Personalized Health Insights:** MLMs analyze vast amounts of data generated by the shoes' sensors to provide personalized health metrics. These include detailed analyses of step count, gait consistency, and physiological feedback such as heart rate patterns.
- **Adaptive Learning and Predictions:** The more data the system processes, the smarter it becomes. This adaptive learning allows OWN Shoes to not only enhance the accuracy of health monitoring over time but also to anticipate potential health issues based on detected patterns.

Exploring General AI Capabilities General AI, aiming to mimic human intelligence, remains a largely aspirational goal in AI research. However, its principles inspire the development of algorithms that facilitate broad, cross-disciplinary reasoning and decision-making in OWN Shoes:

- **Integrative Data Analysis:** AI algorithms in OWN Shoes can synthesize data across various health domains, using insights from an individual's physical activity to inform potential health advisories.
- **Human-like Decision Making:** The system uses reasoning algorithms that simulate human thought processes to provide recommendations, such as suggesting preventive measures based on unusual activity patterns or offering health tips tailored to the user's data.

Practical Implementation in OWN Shoes The practical application of these AI technologies involves several key components:

- **Real-Time Data Processing:** Embedded sensors continuously collect data, which is immediately processed by MLM algorithms. This ensures that health insights are both current and contextually relevant.
- **Seamless User Interaction:** The user interface of the OWN Shoes app leverages AI to deliver an intuitive experience, presenting health metrics and insights in an easily understandable format. The app also learns from user interactions, enhancing its ability to provide relevant information and advice.

Technology Stack

Web and Mobile App



React, HTML, React Native, REST APIs and WebSocket for real-time data communication.

Internal Platform



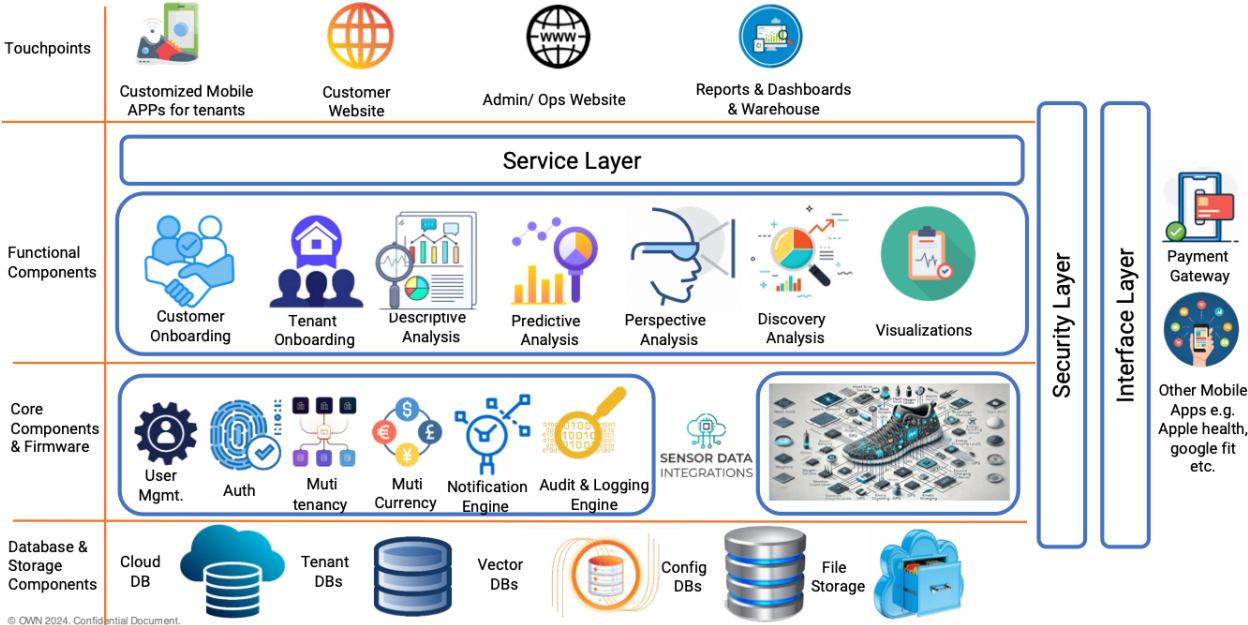
Python (scikit-learn, TensorFlow), LLM, Hugging face, AWS Lambda, AES-128/256 encryption for BLE communication, OAuth 2.0 and JWT (JSON Web Tokens) , Jenkins, CircleCI, or GitHub Actions, Prometheus and Grafana for real-time monitoring

Hardware

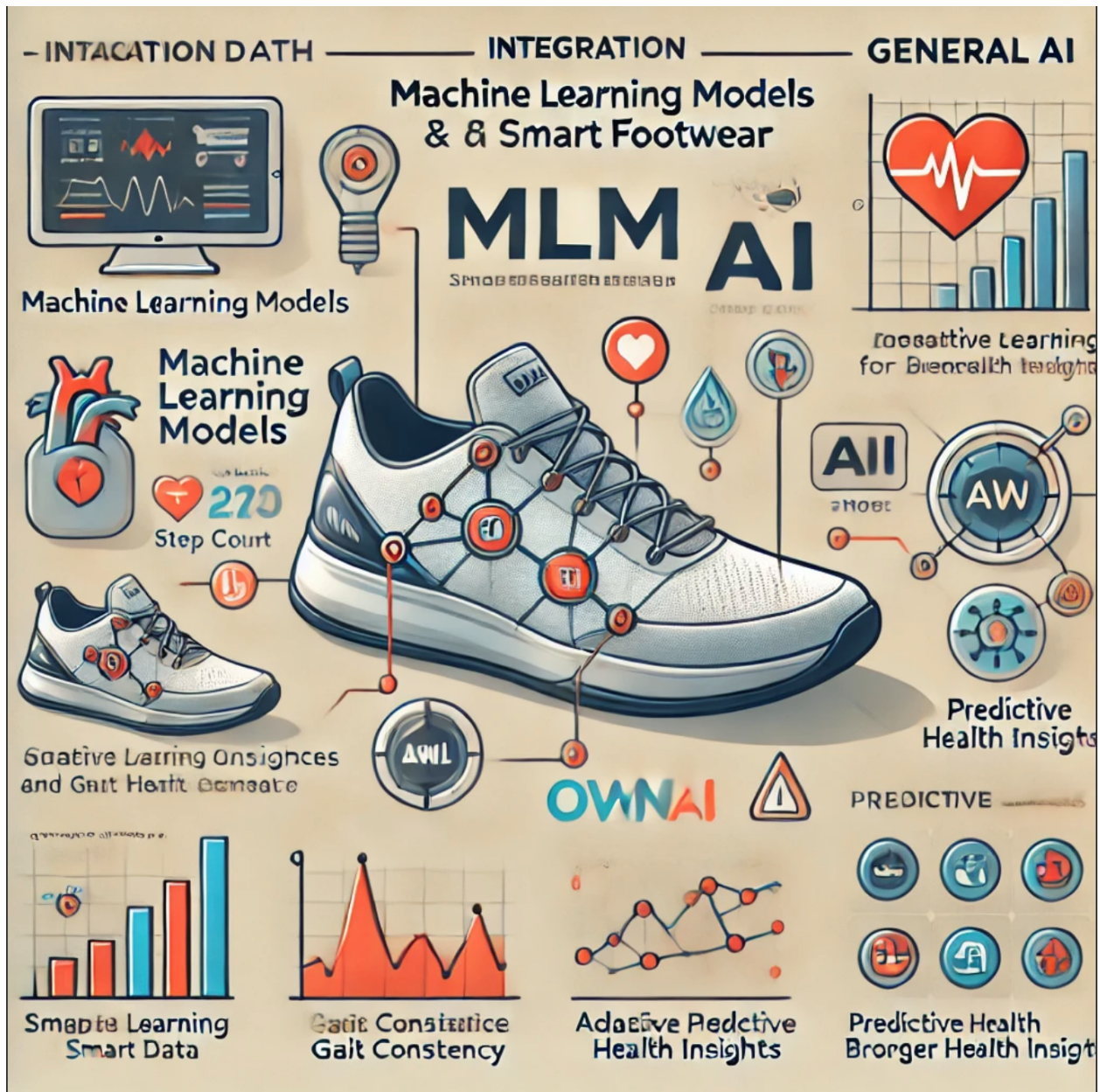


OS, Microcontroller, Health Sensors, IMU Sensors, Pressure Sensors, FSR, GPS, Power Management: Communication, Offline data backup.

Tech Architecture



Conclusion Machine Learning and AI are not just buzzwords for OWN Shoes; they are integral to delivering a product that actively contributes to health monitoring and enhancement. As AI technology evolves, OWN Shoes remains committed to incorporating these advancements, ensuring that users have access to the most innovative and effective health monitoring tools embedded right in their footwear. With OWN Shoes, users step into a future where technology and wellness walk hand in hand.



Deepening Health Insights with Advanced Predictive Analysis in OWN Shoes

Expanding the Frontiers of Health Monitoring with Predictive Analytics

Predictive analysis is transforming the landscape of personal health monitoring, enabling users to not only track health metrics but also anticipate and address potential health concerns before they manifest significantly. OWN Shoes leverages this powerful technology to turn everyday

footwear into an indispensable tool for proactive health management, offering deeper insights and actionable foresight.

In-Depth Mechanisms of Predictive Analysis in OWN Shoes

OWN Shoes incorporate a multi-layered predictive analytics framework that operates continuously to safeguard and enhance the wearer's health. This system is built on sophisticated data integration and intelligent algorithms that work in harmony to predict health outcomes:

- **Comprehensive Data Collection:** Embedded sensors in OWN Shoes meticulously collect a wide array of data points including step frequency, gait patterns, foot pressure distribution, and physiological responses such as heart rate variability and skin temperature.
- **Advanced Data Processing and Analysis:** This raw data is streamed in real-time to powerful analytical engines that utilize advanced statistical methods and machine learning algorithms to identify subtle patterns and trends. This process involves complex model training where historical health data and current metrics are used to refine the predictive accuracy.
- **Predictive Modelling:** Using the processed data, predictive models are built and continually updated to forecast potential health issues. These models employ techniques from various AI disciplines, including regression analysis, time series forecasting, and even neural networks, to predict outcomes such as risk of falls, onset of fatigue, or cardiovascular irregularities.

Sophisticated Applications of Predictive Analysis in OWN Shoes

The implementation of predictive analysis in OWN Shoes offers a multitude of practical benefits that significantly enhance user interaction and health management:

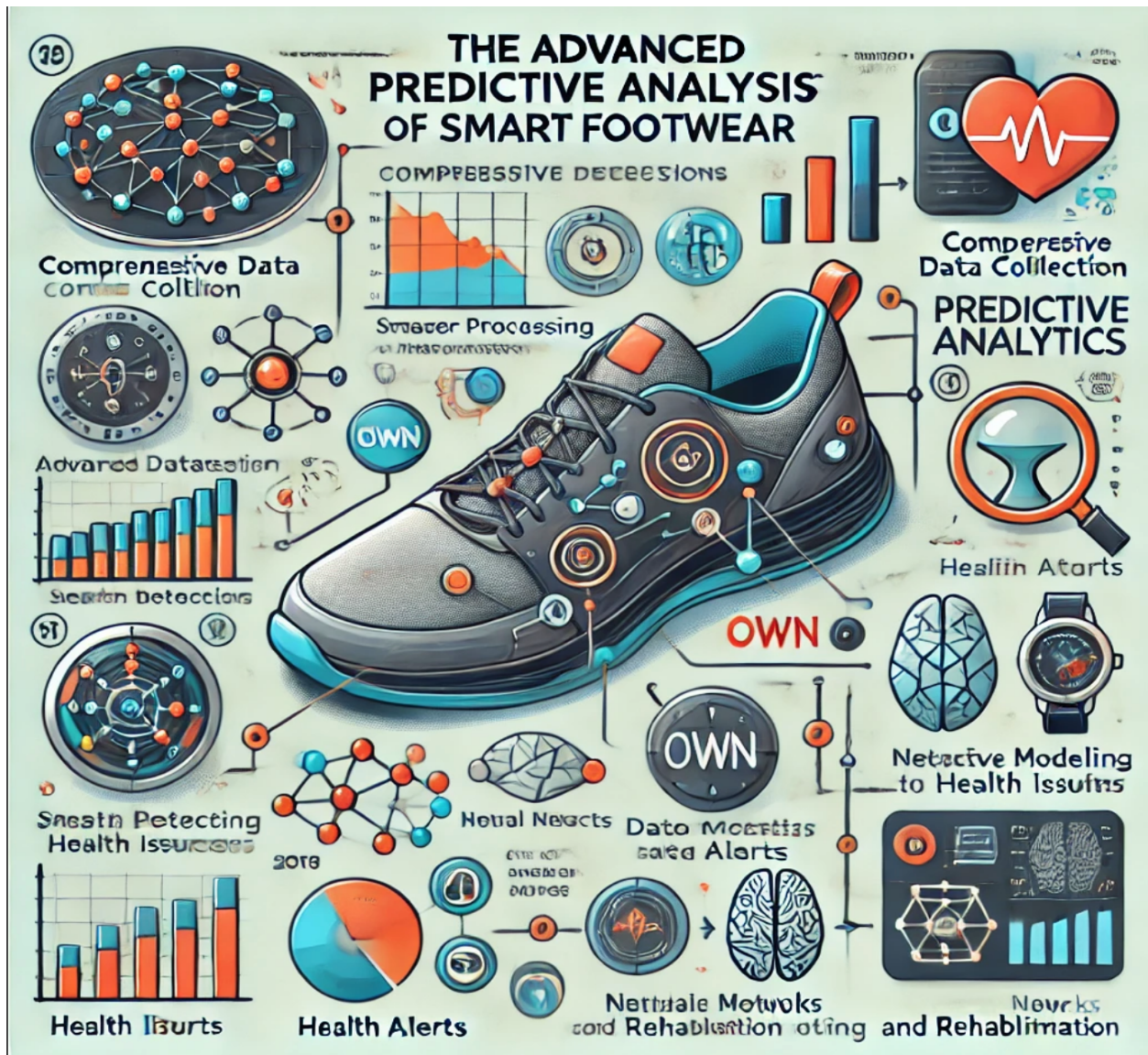
- **Early Detection and Preventive Guidance:** The system's ability to analyze deviations from established health baselines allows it to issue early warnings about potential health

issues. For example, a gradual change in gait symmetry might indicate the onset of musculoskeletal conditions, prompting preventive actions or medical consultations.

- **Dynamic Health Alerts and Recommendations:** Predictive insights drive personalized notifications and health recommendations tailored to each user's activity levels and health data trends. This could involve suggesting less strenuous activities when a risk of overexertion is detected, or reminding a user to hydrate if increased dehydration levels are anticipated.
- **Rehabilitation and Recovery Monitoring:** For users recovering from injuries, predictive analysis provides continuous feedback on their rehabilitation progress, adapting recovery programs based on predicted healing trajectories and highlighting any indications of potential re-injury.

Enriching Health Outcomes Through User Empowerment The integration of advanced predictive analysis in OWN Shoes profoundly impacts how individuals manage their health:

- **Proactive Health Management:** Users receive not just data, but interpretations that help them understand potential future health trajectories. This foresight enables more informed decision-making and encourages proactive rather than reactive health management.
- **Customized Health Optimization:** As predictive models accumulate more data, the recommendations become increasingly specific, effectively customizing to the user's evolving health profile. This bespoke approach ensures that each user experiences optimized health interventions.
- **Enhanced Engagement and Compliance:** The direct feedback and clear, actionable advice based on predictive analytics enhance user engagement with the OWN Shoes platform. Increased trust and reliability in the footwear's health monitoring capabilities foster greater compliance and reliance on the technology for daily health decisions.



Advanced AI Integration in OWN Shoes: A Closer Look

Seamlessly Merging Sophisticated AI with Everyday Functionality

OWN Shoes incorporate cutting-edge AI technologies, transforming conventional footwear into a dynamic tool for comprehensive health monitoring. This section elaborates on the specific technologies used, how they're integrated into the footwear, and the practical benefits they offer to users.

Deep Dive into Machine Learning Models (MLM) At the core of OWN Shoes' technology stack are Machine Learning Models (MLM), which are crucial for processing and interpreting the vast amounts of data collected by the shoe sensors. These models facilitate a sophisticated understanding of user behavior and health patterns.

- **Sophisticated Sensor Array:** Each shoe is equipped with advanced sensors designed to collect data on physical parameters like step count, gait dynamics, pressure points, and environmental interactions. These sensors provide a continuous stream of data, essential for real-time health monitoring.
- **Dynamic Data Processing:** MLMs analyze sensor data in real-time, identifying patterns and anomalies. This process involves complex algorithms that adjust their parameters based on new data, enhancing the accuracy and personalization of health insights. For example, variations in gait could be analyzed to predict potential orthopedic issues, while changes in pressure distribution might indicate emerging foot health concerns.

Harnessing General AI for Holistic Insights While specific applications use targeted machine learning algorithms, the overarching system is guided by principles of General AI, which enable cross-functional intelligence and holistic health management.

- **Integrative Analytics:** AI algorithms integrate data from various sensors to provide comprehensive health assessments. This includes correlating physical activity data with physiological responses to offer insights into cardiovascular health, biomechanical stress, and overall physical wellness.
- **Proactive Health Interventions:** By applying predictive analytics, the system anticipates health issues before they manifest. For instance, detecting early signs of fatigue could trigger recommendations for rest and recovery, while abnormal pressure patterns might prompt an evaluation for corrective orthotics.

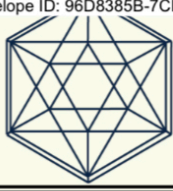
User-Centric Design and Interaction OWN Shoes are designed to ensure that advanced technology enhances user experience without adding complexity to the interaction.

- **Intuitive User Interface:** The accompanying mobile app displays an intuitive dashboard that simplifies complex data into understandable metrics, enabling users to track their health and activity effortlessly.
- **Adaptive Feedback Mechanisms:** The system learns from user interactions, tailoring notifications and health suggestions to fit personal preferences and responsiveness. This adaptive feedback loop ensures that users remain engaged and receive relevant health information.

Seamless Daily Integration The ultimate goal of incorporating AI into OWN Shoes is to make health monitoring a seamless part of everyday life.

- **Automated Operations:** All functionalities, from data collection to health recommendations, operate automatically. Users benefit from sophisticated health monitoring without needing to interact frequently with the technology.
- **Customization and User Control:** Users can personalize settings based on their health goals, lifestyle needs, and preferences. This customization extends from data privacy settings to the frequency and types of notifications they receive.

Conclusion By embedding advanced AI technologies, OWN Shoes not only monitors but also predicts and acts on health-related data, providing a proactive approach to personal health management. As these technologies evolve, they will continue to refine the insights offered, ensuring that OWN Shoes remain at the forefront of health-oriented wearable technology. This ongoing innovation is key to transforming everyday footwear into an essential tool for health and wellness.



TACTUS[®] VENTURES INC.

Office Address – 16192 Coastal Highway, Lewes, Delaware 19958, Country of Sussex

INTERNSHIP CERTIFICATE

Date: 27/07/2024

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms Reeth Bhasin has successfully completed 15 days of internship program from 11th July 2024 to 26th July 2024 in the Software Department (Artificial Intelligence & Machine learning) of our organization.

During the internship she demonstrated good technical skills with a self-motivated attitude to learn new things.

She is highly motivated and hardworking. She worked sincerely at her tasks and performed exceptionally well in the tasks assigned to her.

We wish her great success in her future endeavors.

For Tactus[®] Ventures INC

Signed by:

84EE73B5A5EB4BC...

Mr Karan Bhasin

CEO & Founder