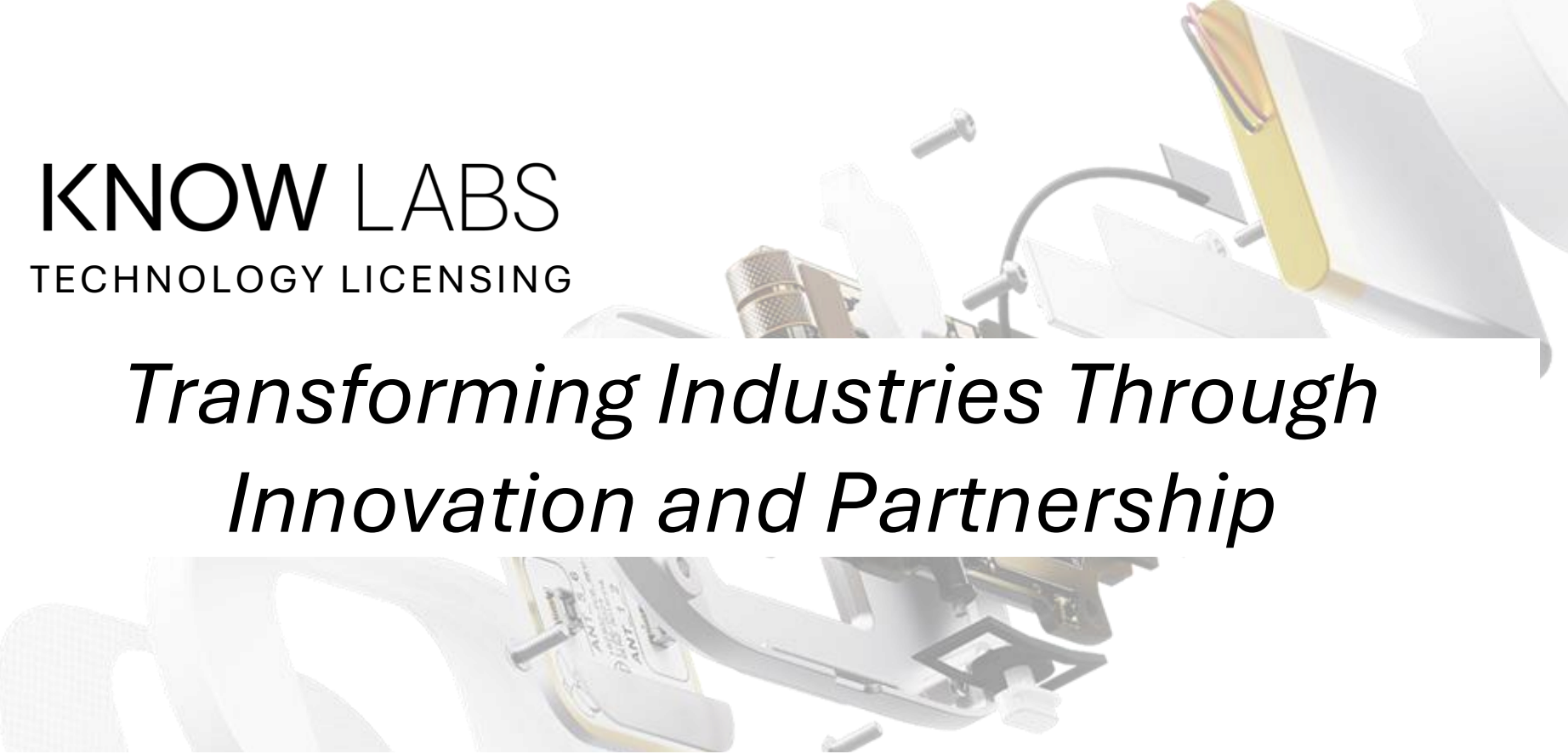
KNOW LABS

TECHNOLOGY LICENSING



Transforming Industries Through Innovation and Partnership

Vision & Mission

Vision

To be the leading platform for non-invasive RF technology across industries.

Mission

Empowering global innovation through scalable, versatile, and revolutionary non-invasive solutions.

Market Opportunity

- Non-Invasive Monitoring Device market is projected to reach USD 2.1 Billion by 2032
- This market growth is fueled by increasing demand for real-time, painless monitoring solutions in **healthcare, diagnostics, and personal wellness**.
- **Why it Matters for KTL**
  - Cutting-edge technology that unlocks untapped markets across industries.
  - Market Growth Validates Demand.
  - KTL's patent-protected, non-invasive RF technology is well-positioned to capture emerging opportunities across multiple industries.

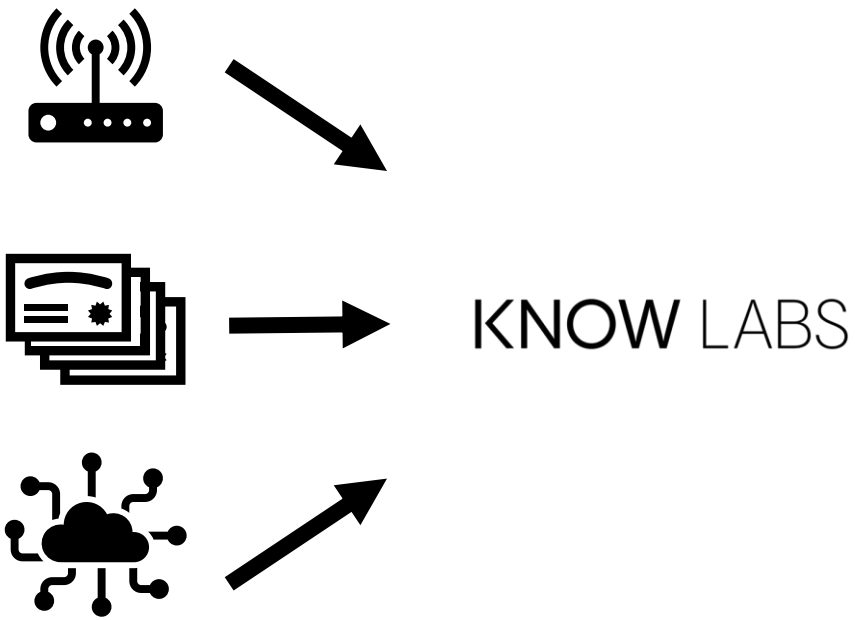
Source: *Market Research Future*

Why Know Labs?

Proven Technology
Peer-reviewed validation of accuracy, stability, and repeatability.
(see: Validation)

IP Leadership
Over 300 patents—issued, pending and in-process (see: IP)

Commercial Readiness
Complete commercialization toolkit on a scalable platform
(see: KTL Platform)



Know Labs' Technology is in development, and there is no assurance that the development will have a successful outcome. Past performance is not indicative of future results. There is no guarantee that any specific objective will be achieved.

Core Technology

Gen1 Prototype

Platform

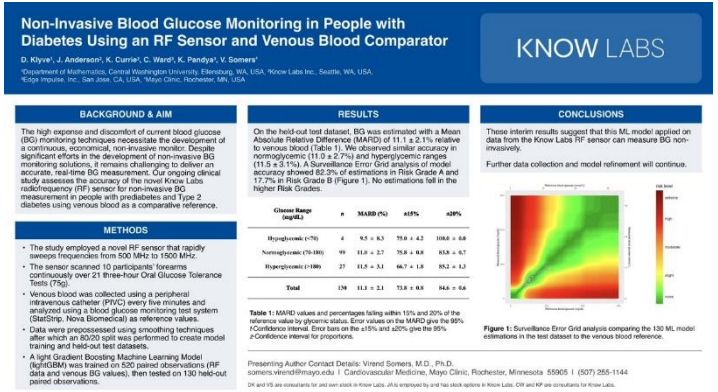
RF Dielectric Spectroscopy with AI-Powered Analytics.

Capabilities

Multi-analyte detection, real-time Insights, form-factor agnostic solutions

Advantages

Independent of visible-light, seamless system interoperability



Non-Invasive Blood Glucose Monitoring in People with Diabetes Using an RF Sensor and Venous Blood Comparator

KNOW LABS

D. Klyve[1], J. Anderson[2], K. Currie[2], C. Ward[3], K. Pandya[3], V. Somers[3]

[1]Department of Mathematics, Central Washington University, Ellensburg, WA, USA. [2]Know Labs Inc., Seattle, WA, USA. [3]Edge Impulse, Inc., San Jose, CA, USA. [4]Mayo Clinic, Rochester, MN, USA

BACKGROUND & AIM

The high expense and discomfort of current blood glucose (BG) monitoring techniques necessitate the development of a continuous, economical, non-invasive monitor. Despite significant efforts in the development of non-invasive BG monitoring solutions, it remains challenging to deliver an accurate, real-time BG measurement. Our ongoing clinical study assesses the accuracy of the novel Know Labs radiofrequency (RF) sensor for non-invasive BG measurement in people with prediabetes and Type 2 diabetes using venous blood as a comparative reference.

METHODS

- The study employed a novel RF sensor that rapidly sweeps frequencies from 500 MHz to 1500 MHz.
- The sensor scanned 10 participants' forearms continuously over 21 three-hour Oral Glucose Tolerance Tests (75g).
- Venous blood was collected using a peripheral intravenous catheter (PIVC) every five minutes and analyzed using a blood glucose monitoring test system (StatStrip, Nova Biomedical) as reference values.
- Data were preprocessed using smoothing techniques after which an 80/20 split was performed to create model training and held-out test datasets.
- A light Gradient Boosting Machine Learning Model (lightGBM) was trained on 520 paired observations (RF data and venous BG values), then tested on 130 held-out paired observations.

RESULTS

On the held-out test dataset, BG was estimated with a Mean Absolute Relative Difference (MARD) of 11.1 ± 2.1% relative to venous blood (Table 1). We observed similar accuracy in normoglycemic (11.0 ± 2.7%) and hyperglycemic ranges (11.5 ± 3.1%). A Surveillance Error Grid analysis of model accuracy showed 82.2% of estimations in Risk Grade A and 17.7% in Risk Grade B (Figure 1). No estimations fell in the higher Risk Grades.

Glucose Range (mg/dL)	n	MARD (%)	±15%	±20%
Hypoglycemic (<70)	4	9.5 ± 8.3	75.0 ± 4.2	100.0 ± 0.0
Normoglycemic (70-180)	99	11.0 ± 2.7	75.8 ± 0.8	83.8 ± 0.7
Hyperglycemic (>180)	27	11.5 ± 3.1	66.7 ± 1.8	85.2 ± 1.3
Total	130	11.1 ± 2.1	73.8 ± 0.8	84.6 ± 0.6

Table 1: MARD values and percentages falling within 15% and 20% of the reference value by glycemic status. Error values on the MARD give the 95% Confidence interval. Error bars on the ±15% and ±20% give the 95% Confidence interval for proportions.

CONCLUSIONS

These interim results suggest that this ML model applied on data from the Know Labs RF sensor can measure BG non-invasively.

Further data collection and model refinement will continue.

Figure 1: Surveillance Error Grid analysis comparing the 130 ML model estimations in the test dataset to the venous blood reference.

Presenting Author Contact Details: Virend Somers, M.D., Ph.D.
somers.virend@mayo.edu | Cardiovascular Medicine, Mayo Clinic, Rochester, Minnesota 55905 | (507) 255-1144

DK and VS are consultants for and own stock in Know Labs. JA is employed by and has stock options in Know Labs. CW and KP are consultants for Know Labs.

Example Use Case:

[Non-Invasive Blood Glucose Monitoring (IEEE)]

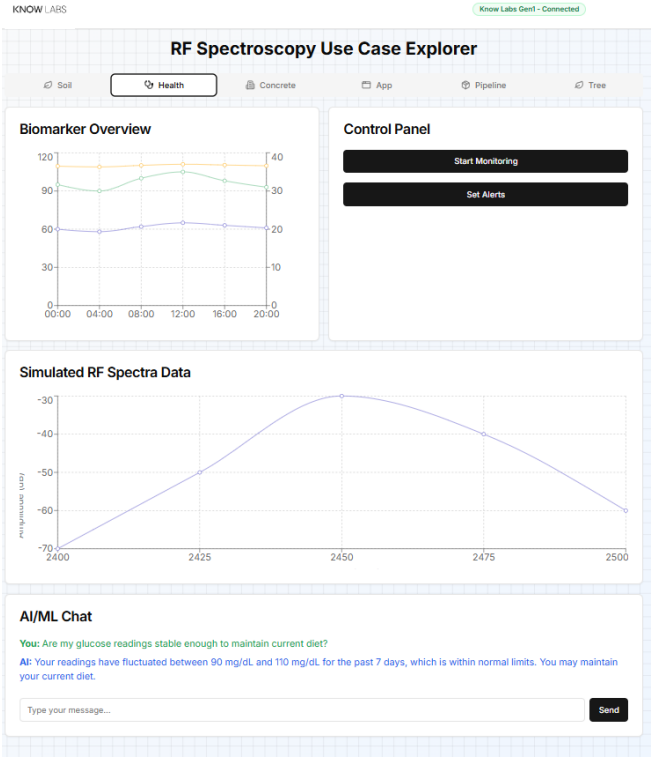
Diverse Applications

Sectors Covered:

- Healthcare (e.g., glucose monitoring, telehealth diagnostics).
- Industrial (e.g., quality control, NDT for aerospace).
- Consumer Technology (e.g., smart wearables).

Specific Examples:

- Continuous glucose monitoring,
- counterfeit detection,
- and soil health monitoring



[RF Spectroscopy Use Case Explorer]

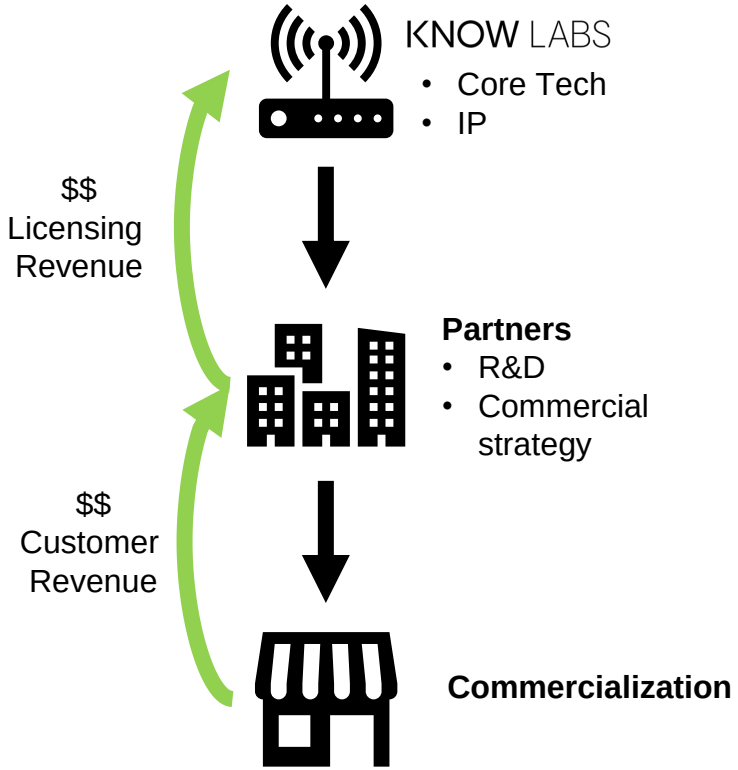
Strategic Business Model

Licensing:

- Patent licensing (core and non-core fields of use).
- SaaS: RF data collection and analysis apps.
- White-label apps and SDKs.

Efficiency:

- Partner-driven R&D for faster time-to-market.



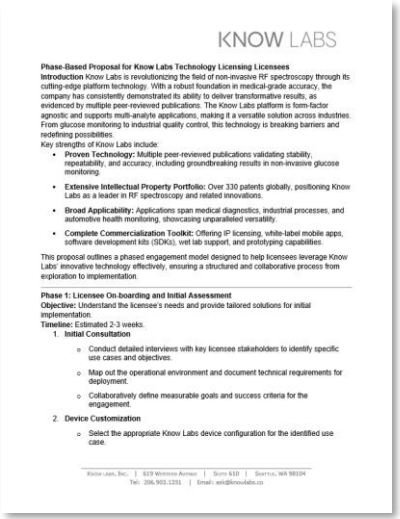
Example Project Structure: Phased Process

Phase 1 – Onboarding and Customization
Phase 2 – Data Collection & AI Optimization
Phase 3 – Advanced Integration & System Scaling
Phase 4 – IP Development & Competitive Differentiation
Phase 5 – Commercialization & Market Acceleration

Benefits for Partners:

Faster time-to-market, scalable business model, IP-backed revenue streams.

Partner-first model removes friction, accelerates adoption, drives sustained profitability



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Phase-Based Proposal for Know Labs Technology Licensing Licensees

Introduction Know Labs is revolutionizing the field of non-invasive RF spectroscopy through its cutting-edge platform technology. With a robust foundation in medical-grade accuracy, the company has consistently demonstrated its ability to deliver transformative results, as evidenced by multiple peer-reviewed publications. The Know Labs platform is form-factor agnostic and supports multi-analyte applications, making it a versatile solution across industries. From glucose monitoring to industrial quality control, this technology is breaking barriers and redefining possibilities.

Key strengths of Know Labs include:

- **Proven Technology:** Multiple peer-reviewed publications validating stability, repeatability, and accuracy, including groundbreaking results in non-invasive glucose monitoring.
- **Extensive Intellectual Property Portfolio:** Over 330 patents globally, positioning Know Labs as a leader in RF spectroscopy and related innovations.
- **Broad Applicability:** Applications span medical diagnostics, industrial processes, and automotive health monitoring, showcasing unparalleled versatility.
- **Complete Commercialization Toolkit:** Offering IP licensing, white-label mobile apps, software development kits (SDKs), wet lab support, and prototyping capabilities.

This proposal outlines a phased engagement model designed to help licensees leverage Know Labs' innovative technology effectively, ensuring a structured and collaborative process from exploration to implementation.

Phase 1: Licensee On-boarding and Initial Assessment

Objective: Understand the licensee's needs and provide tailored solutions for initial implementation.

Timeline: Estimated 2-3 weeks.

1. **Initial Consultation**
   - Conduct detailed interviews with key licensee stakeholders to identify specific use cases and objectives.
   - Map out the operational environment and document technical requirements for deployment.
   - Collaboratively define measurable goals and success criteria for the engagement.
2. **Device Customization**
   - Select the appropriate Know Labs device configuration for the identified use case.

(link to proposal)

Future Innovations

Expansion

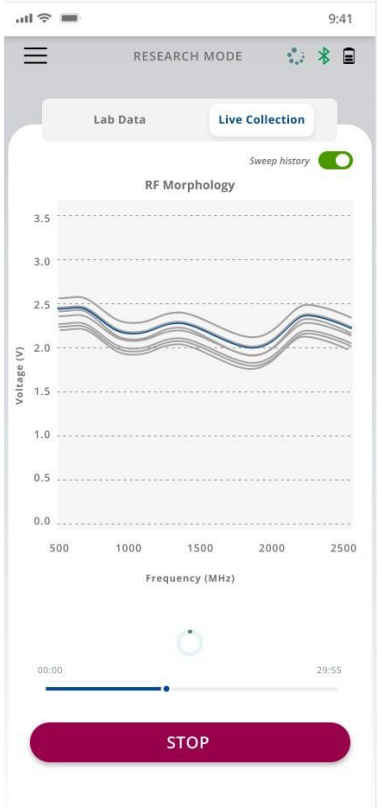
- Gateway to additional analytes (e.g., ketones, cortisol) via KnowU app.

Advanced Projects

- Carousel for data collection efficiency.
- Know Labs device positioned as the "Voltmeter" for RF spectroscopy experimentation.

Projections

- Democratization of RF spectroscopy research and commercialization.
- Scalability and recurring revenue through innovative partnerships.



KnowU app.

Partner with Know Labs

Partner with KTL to drive innovation, capture markets, and redefine industries.

Licensing inquiries and Partnership Opportunities:
ask@knowlabs.co

KNOW LABS
TECHNOLOGY LICENSING

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Seattle, WA 98104
www.knowlabs.co

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Appendix

Validation: Stability, Repeatability and Accuracy

Peer-Reviewed Publications in 2024

July 8, 2024

A Glycemic Status Classification Model Using a Radiofrequency Noninvasive Blood Glucose Monitor.

A study titled, "*A Glycemic Status Classification Model Using a Radiofrequency Noninvasive Blood Glucose Monitor*," demonstrates the accuracy of Know Labs' proprietary non-invasive radiofrequency (RF) dielectric sensor and trade-secret machine learning (ML) algorithms in classifying an individual's glycemic status as hyperglycemic, normoglycemic, or hypoglycemic with 93.37% accuracy compared to venous blood glucose values—serving as an early proof-of-concept for a novel, non-invasive diabetes screening device.

Peer-Reviewed By: *Diabetes Technology & Therapeutics Journal*

Karim F, Anderson JH, Currie K, Bui C, Klyve D, Sor
Status Classification Model Using a Radiofrequen
doi:10.1089/dia.2024.0170

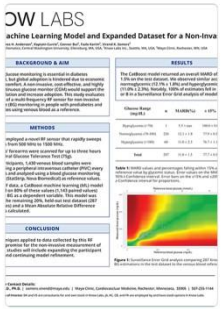
DTT Journal
93.37% Accuracy

IEEE Sensors

September 1, 2024

Noninvasive Blood Glucose Measurement Using RF Spectroscopy and a LightGBM AI Model

12.7% MARD - normoglycemic range
14.0% MARD - hyperglycemic range



June 21, 2024

Clinical Research Study Among PWD Using a Venous Blood Comparator Demonstrates a Stable MARD in an Expanded Dataset.

A study titled, "*A New Machine Learning Model and Expanded Dataset for a Non-Invasive BGM*," assesses the accuracy of the novel Know Labs radiofrequency (RF) dielectric sensor for non-invasive blood glucose measurement in participants with prediabetes and Type 2 diabetes using venous blood as comparative reference. Results were presented as a poster at the American Diabetes Association's 84th Scientific Sessions.

Reviewed By: Abstract Review Committee American Diabetes Association's 84th Scientific Sessions.

Klyve D, Anderson JH, Currie K, Bui C, Karim F, Somers VK. Published March 6, 2024. Non-Invasive Blood Glucose Monitoring in People with Diabetes Using an RF Sensor and Venous Blood Comparator. The American Diabetes Association's 84th Scientific Sessions, Orlando, FL.

ADA/2024
11.8% MARD

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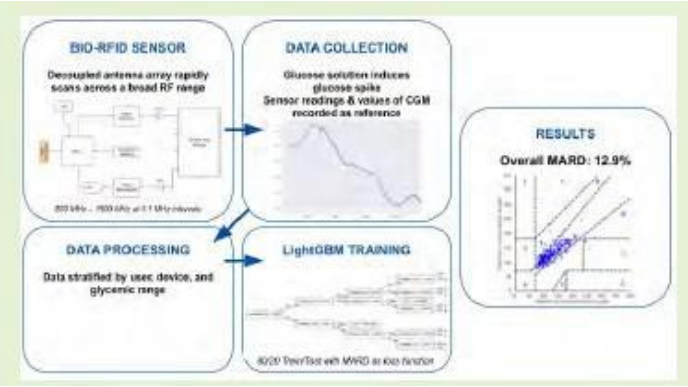
IEEE Sensors Journal

September 1, 2024

12.7% MARD - normoglycemic range
14.0% MARD - hyperglycemic range
12.9% MARD - overall



IEEE Sensors Council IEEE SENSORS JOURNAL, VOL. 24, NO. 17, 1 SEPTEMBER 2024 28049

Noninvasive Blood Glucose Measurement Using RF Spectroscopy and a LightGBM AI Model

Dominic Klyve, Steve Lowe, Kaptain Currie, James H. Anderson Jr., Carl Ward, and Barry Shelton

Abstract—We present a validation for a novel sensor and data processing pipeline designed to measure blood glucose (BG) noninvasively using the rapid collection of a broad range of radio frequency (RF) waves via a decoupled antenna array. Five healthy human subjects ingested 37.5 g of glucose solution to generate BG readings across two glycemic ranges: normoglycemic and hyperglycemic. Concurrent measurements from a continuous glucose monitor (CGM) and the RF sensor were collected for comparative analysis. A light gradient-boosting machine (LightGBM) model was trained to predict BG values using 1555 observations, where an observation is defined as data collected from 13 RF sensor sweeps paired with a single Dexcom G6 CGM value. Using this model, we predicted BG in the held-out test dataset with a mean absolute relative difference (MARD) of 12.7% in the normoglycemic range and 14.0% in the hyperglycemic range. While in early-stage validation, these results demonstrate the promise of this hardware and software technique for the noninvasive measurement of BG for practical application.

Index Terms—Diabetes, light gradient-boosting machine (LightGBM), noninvasive blood glucose (BG) monitoring, radio frequency (RF) sensor.

ATTD 2024 Poster: ~11% MARD in Normal & Hyperglycemic

Non-Invasive Blood Glucose Monitoring in People with Diabetes Using an RF Sensor and Venous Blood Comparator

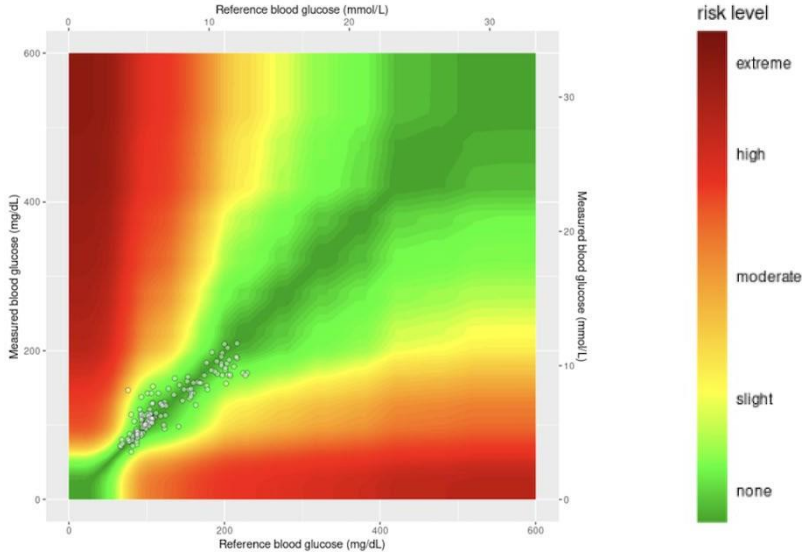
D. Klyve, J. Anderson, K. Currie, C. Ward, K. Pandya, V. Somers

17th Advanced Technology & Treatment for Diabetes (ATTD) Conference, Florence, Italy March 6 – 9, 2024
Presented by Dr. Virend Somers, M.D., PhD., Mayo Clinic

- 30 participants with **prediabetes and Type 2 diabetes**
- **Venous blood** as a comparative reference
- 3-hour **Glucose Tolerance Test** (GTT)

Glucose Range (mg/dL)	*n*	MARD (%)	±15%	±20%
Hypoglycemic (<70)	4	9.5 ± 8.3	75.0 ± 4.2	100.0 ± 0.0
Normoglycemic (70-180)	99	11.0 ± 2.7	75.8 ± 0.8	83.8 ± 0.7
Hyperglycemic (>180)	27	11.5 ± 3.1	66.7 ± 1.8	85.2 ± 1.3
Total	130	11.1 ± 2.1	73.8 ± 0.8	84.6 ± 0.6

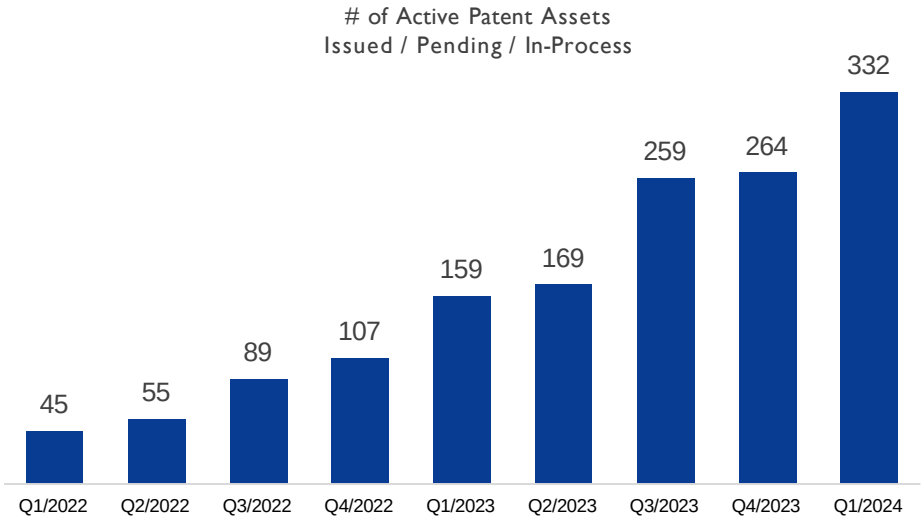
LightGBM Machine Learning Model: 80% training (520 paired RF and reference blood glucose values)/20% test (130 paired values)



100% of estimations in Risk Grades A and B (82.3% in A, 17.7% in B)

IP-Protected: Global IP Leadership

Know Labs Patent Portfolio



March 2022 to March 2024: IP portfolio grew 7.4x

Strategic IP development program

- 332 patents = 75 granted, 204 pending and 53 in-process
- 109% YoY growth, 3.1x IP market growth of ~35%
- **Global coverage with patent assets in the US, PCT and 16 other jurisdictions worldwide**

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IP Coverage: Devices (>100 Patents)

Key
Green = granted patent
Red = pending application
= same family/similar technology

Antenna Array/Sensor

- US 10,548,503; Europe, China, Indonesia, South Korea
- US 17/889102
- US 18/150985
- US 18/160235

- US 11,063,373; Europe, China, South Korea, Taiwan
- US 11,234,619
- US 11,031,970
- US 11,223,383
- US 11,058,317
- US 17/123992
- US 18/062869

- US 17/243938; Europe, China, Japan, South Korea, Taiwan

- US 17/930137
- PCT/IB2023/058828

- US 29/874568; Europe, China, UK, Japan

- US 29/877412; Europe, China, UK, Japan

Antenna Switching

- US 11,058,331; Europe, China, Japan, Hong Kong
- US 11,193,923
- US 11,330,997; Europe, China, Japan, Hong Kong
- US 17/699,803

Frequency Sweeps

- US 11,033,208; Europe, China, Japan, India, Singapore
- US 17/314715

NI High Performance Sensor

- US 11,529,077 MARD (5.0% to 9.9%)

Predictive Health & Database

- US 11,234,618; Europe, China, Brazil, Japan, South Korea
- US 11,284,819
- US 11,284,820
- US 17/685141
- US 17/685157

Control Insulin Pump/Other Device

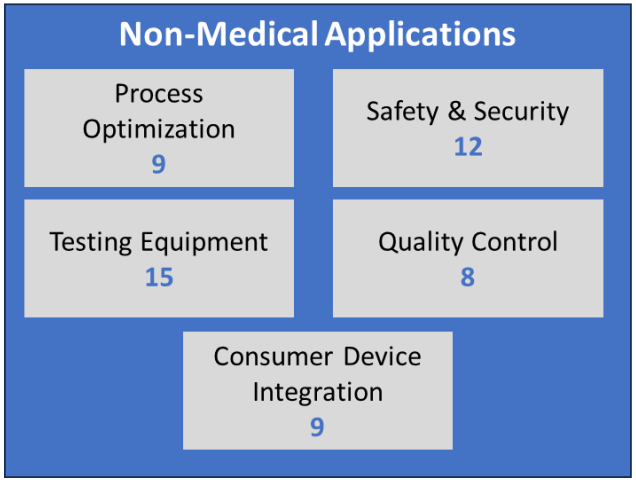
- US 11,510,597; Europe, China, Australia, Canada, Japan, HK
- US 18/055084
- US 11,389,091

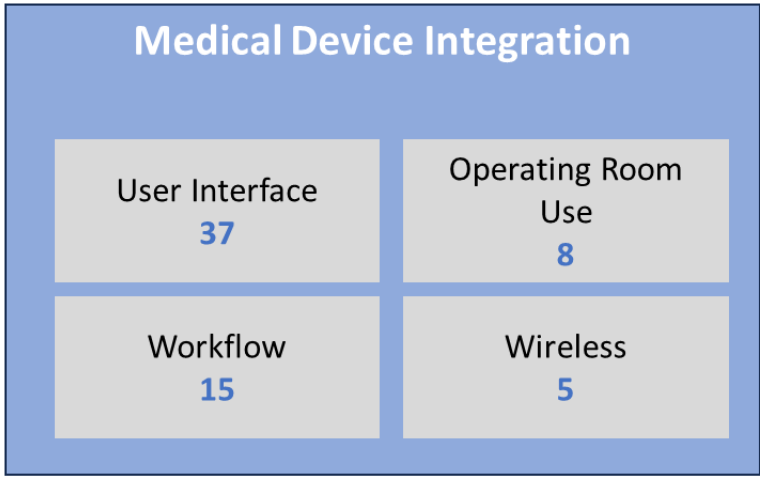
IP Coverage: Platform (>100 Patents)

Key
Green = granted patent
Red = pending application
= same family/similar technology

• US 17/171279 • US 17/171281 • US 17/171284	Notification based on sensor results
• US D942430 • EU 008267561-001 • EU 008267561-002 • EU 008267561-003 • UK 90082675610001 • UK 90082675610002 • UK 90082675610003	Non-Gen 1 antenna array designs
• US 17/198760	In Vitro/Table Top Sensor
• US 11,689,274 • US 18/330974 • US 11,764488 • US 18/330976	Detecting Variability In A Medium
• US 17/465110 • US 17/465112	Sensor Useable In Wearable and Non-Wearable Device
• US 17/468298 Europe, China, Japan • US 17/468300	In Vitro Flowing Fluids
• US 17/455309	Smartwatch With Sensor
• US 17/584822	Shape Changing Antenna
• US 17/478084 - PCT/IB2022/058421	Noise Reduction
• US 17/454383 • US 17/805338 - PCT/IB2022/060799	Temperature Compensation
• US 29/790073 - EU 008863054-0001 - EU 008863054-0002 - UK 6192169 - UK 6192170 • US 29/790074 • US D991063 - EU 008860639-0001 - UK 6192168	Non-Gen 1 Sensor Designs
• US 17/584845 - PCT/IB2022/060651	Non-Invasive and Invasive Sensing
• US 17/584870 - PCT/IB2023/050643	Multiple Sensor Assemblies
• US 17/858437 • US 18/148491 - PCT/IB2023/056867	Sensing At Varying Body Positions
• US 11,802,843 - PCT/IB2023/053640	Reducing Signal Inaccuracy
• US 17/859787 - PCT/IB2023/057008	Sensing Multiple Analytes
• US 17/662102 • US 11,529,077 - PCT/IB2023/054567	MARD
• US 17/865806 - PCT/IB2023/057201 - Taiwan	Harmonic Signals
• US 17/887923 - PCT/IB2023/058072 • US 17/887954	Analyte-Based Access Controls
• US 18/049838 - PCT/IB2023/060771	Identity-Based Analyte Detection
• US 17/937540 - PCT/IB2023/059307 • US 11,696,698 - PCT/IB2023/059361	Adjustable Sensor Components

IP Coverage: Applications (>100 Patents)





EXAMPLES

- SYSTEM AND METHOD FOR MONITORING HEALTH PARAMETERS
- A RECONFIGURABLE WEARABLE HEALTH MONITORING DEVICE
- A WEARABLE HEALTH MONITORING DEVICE
- SYSTEM AND METHOD FOR TRAINING A MODEL TO MONITOR HEALTH PARAMETERS
- SYSTEM AND METHOD FOR PERFORMING SURGERY WITH REAL-TIME HEALTH PARAMETER MONITORING
- METHOD FOR IMPROVED SURGICAL CARE
- SYSTEM AND METHOD FOR RF ANALYTE MEASUREMENT GUIDED INSULIN ADMINISTRATION
- NON INVASIVE RF DEVICE FUSED WITH MRI DATA

Know Labs Technology Licensing (KTL): New Model to Leverage Foundation

Know Labs has Built a Strong Foundation in RF Spectroscopy for Strategic Partnerships and Joint Ventures

1. Robust research platform / hardware development (Gen 0, 1 and 2)
2. Proven to work (multiple peer-reviewed publications)
3. Form-factor agnostic
4. Multi-analyte application (O2, glucose, alcohol, metabolized drugs, ketones, etc.)
5. Overcomes limitations of optical sensors - impervious to skin tone
6. Interoperability with other systems & devices and Integration with other technologies
7. RF expertise (Time Frequency Sweep & Random Synchronization, on/off Bluetooth/Wi-Fi)
8. Complete Toolkit to Commercialization (IP licensing, white-label mobile app, SDK, wet lab, prototyping)

Open for Business Now: Multiple Paths to Revenue

- Strategic JVs / JDA in core and non-core applications
- Software as Medical Device (SaMD) app royalties
- White Label Mobile App for RF Data Collection
- Patent licensing revenue: core fields-of-use
- Patent licensing revenue: non-core platform technology

Know Labs Technology Licensing (KTL) is the Path to Revenue Now, Leverages Platform Technology, IP and Proprietary Know-How

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Know Labs Technology Licensing (KTL) Announced January 2025

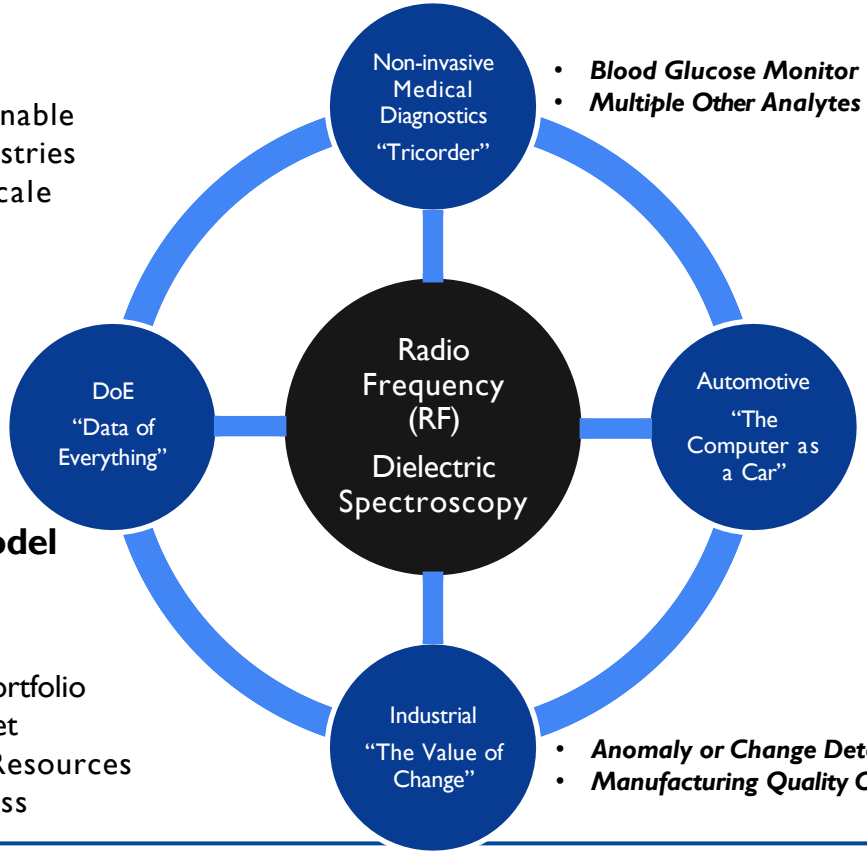
Platform Technology

- First Principles Physics Enable Diverse Use Cases & Industries
- Data at Unprecedented Scale
- Highly Accurate
- Form Factor Agnostic
- Hundreds of Analytes
- Organic & Inorganic

- ***Artificial Intelligence / Big Data***
- ***Artificial General Intelligence (AGI)***

Partnership Business Model

- Multiple Shots on Goal
- High Capital Efficiency
- Monetize Large Patent Portfolio
- Increased Speed to Market
- Leverage Partners' R&D Resources
- Accelerates Market Access



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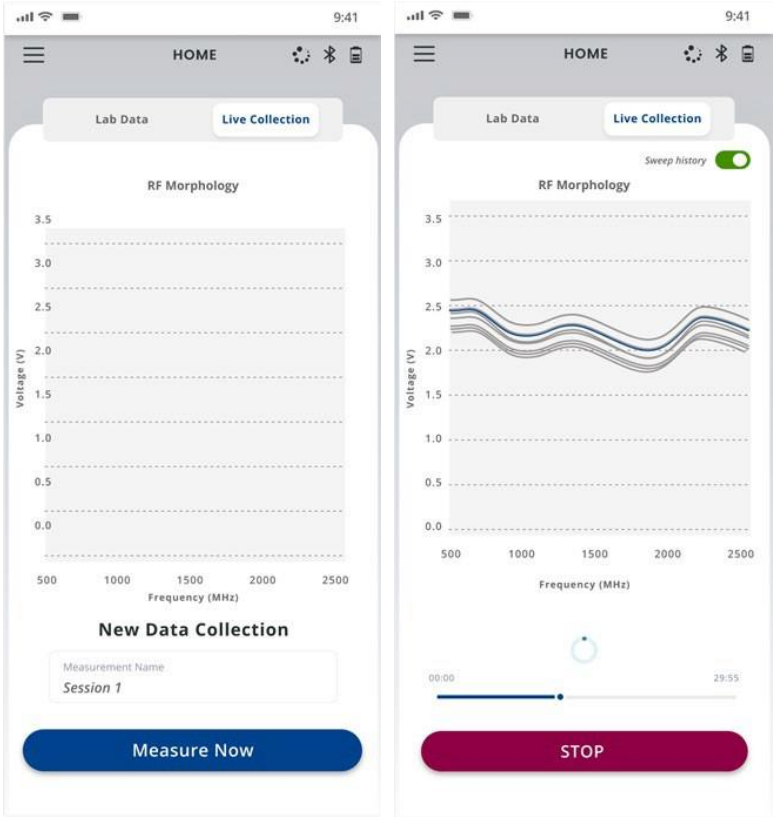
Know Labs Technology Licensing (KTL) Announced January 2025

SkunkWorks – May 2024

- Technology Push
- Opportunistic
- Ad Hoc Process
- Bespoke Offering

RF Data Collection Mobile App Is a Commercial Ready Software Product

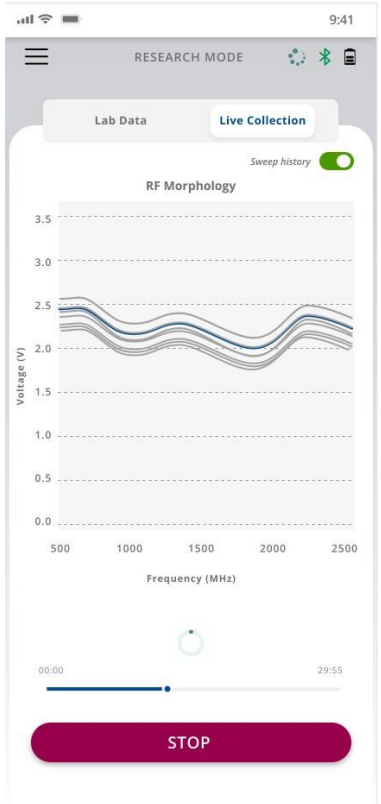


Know Labs Technology Licensing (KTL)

- Market Pull
- Codified Service Offering
- IP License Offerings – FOU, Exclusive
- Proprietary RF Data Collection Mobile App
- Non-Recurring Engineering Revenue (NRE)
- Milestone Payments
- Back-end Royalties
- Tool Box (SDK, POC, wet lab, prototyping)

KnowU App: Gateway to Future Analytes, Corporate JVs and App Store Model

Expandable App Architecture
Combined With Our
Platform Technology Offers
More Functionality
And Opportunity
For Recurring Revenue
From Other Analytes
In the Future
(Ketones, Cortisol, Troponin,
Hormones,
Metabolized Drugs, etc.)



Our App Developer

SYNCRO MEDICAL

SaMD
Software-
As-
Medical
Device

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The Next-Generation Automotive Cockpit

Methods and Systems for Vehicle-Based Wellness Monitoring

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau

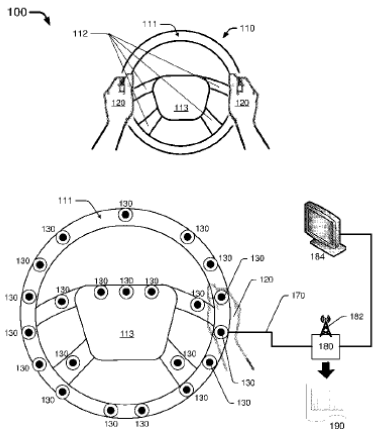
(43) International Publication Date
11 January 2018 (11.01.2018)

WIPO | PCT

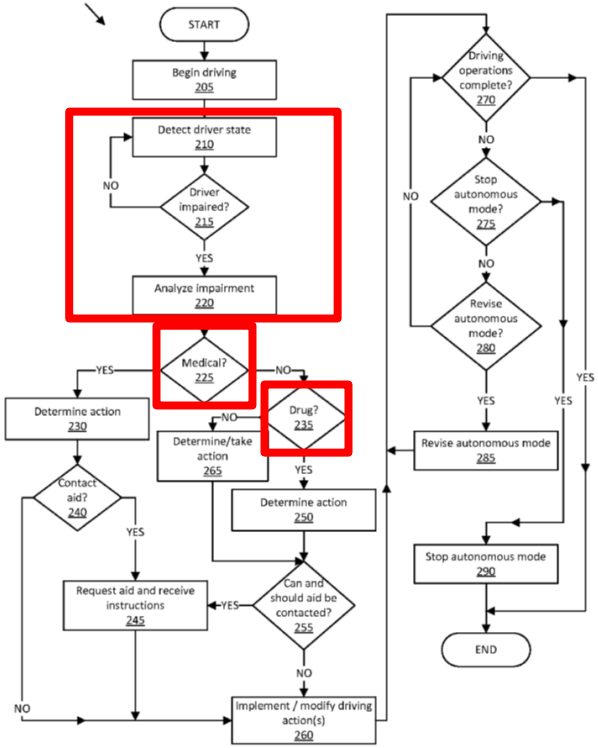
(10) International Publication Number
WO 2018/009219 A1

(54) **Title:** METHODS AND SYSTEMS FOR VEHICLES-BASED WELLNESS MONITORING

(57) **Abstract:** Methods and systems for monitoring wellness of a vehicle occupant are described. A method and a system may involve monitoring biophysical data of the occupant and determining the wellness information thereof. The method and the system may also involve determining whether the occupant is in a potential impairment state. The method and the system may also involve performing precautionary actions in response to the determining that the occupant is in the potential impairment state. The method and the system may also involve providing lifestyle recommendations to the occupant. The method and the system may further involve transmitting the wellness information to a second processor located within the vehicle or remotely from the vehicle.



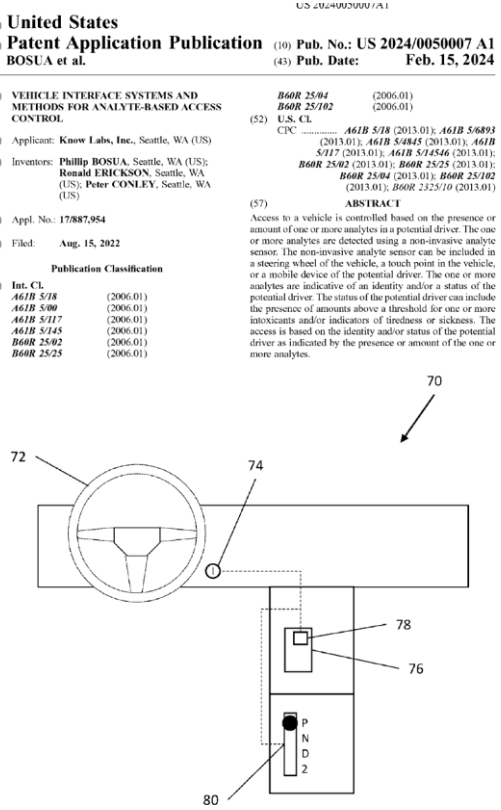
- **Know Labs sensor technology enables autonomous vehicle workflow.**
- **Enables wellness monitoring.**
- **Enables human analyte monitoring seamlessly and non-invasively.**



Know Labs' Technology is in development, and there is no assurance that the development will have a successful outcome. Past performance is not indicative of future results. There is no guarantee that any specific objective will be achieved.

Next-Generation Automotive Health & Wellness Platform

- **Know Labs has developed a patented, highly novel non-invasive platform technology that brings a new class of medical-grade IoT sensors to vehicle-based health & wellness monitoring.**
- Utilizes RF dielectric spectroscopy to accurately measure and monitor over 100 analytes in the human body.
- Know Labs sensors communicate and interact with other systems within the automobile and with external networks.
- **Interoperable with other safety and health & wellness systems.**



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(54) **VEHICLE INTERFACE SYSTEMS AND METHODS FOR ANALYTE-BASED ACCESS CONTROL**

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(57) **ABSTRACT**

Access to a vehicle is controlled based on the presence or amount of one or more analytes in a potential driver. The one or more analytes are detected using a non-invasive analyte sensor. The non-invasive analyte sensor can be included in a steering wheel of the vehicle, a touch point in the vehicle, or a mobile device of the potential driver. The one or more analytes are indicative of an identity and/or a status of the potential driver. The status of the potential driver can include the presence of amounts above a threshold for one or more intoxicants and/or indicators of tiredness or sickness. The access is based on the identity and/or status of the potential driver as indicated by the presence or amount of the one or more analytes.

Know Labs' Technology is in development, and there is no assurance that the development will have a successful outcome. Past performance is not indicative of future results. There is no guarantee that any specific objective will be achieved.