



Columbia Engineering x AWS Bedrock Innovation Challenge

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PosturePal

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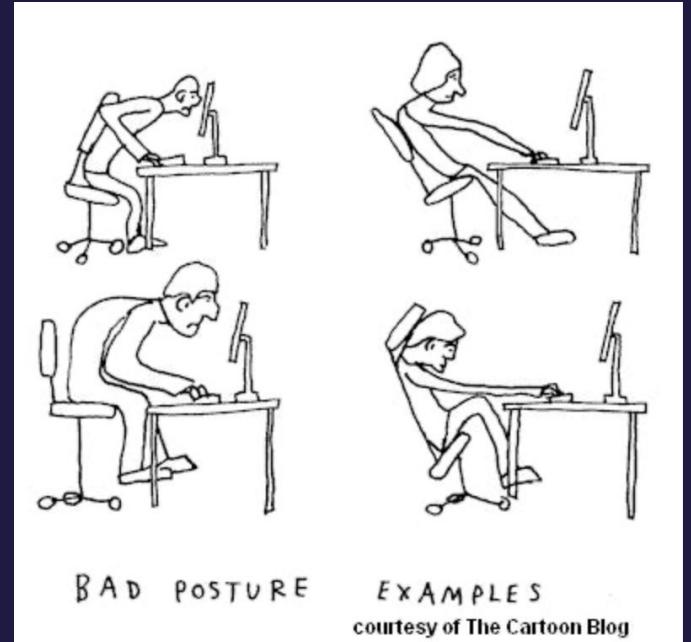
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COLUMBIA ENGINEERING

Problem Statement

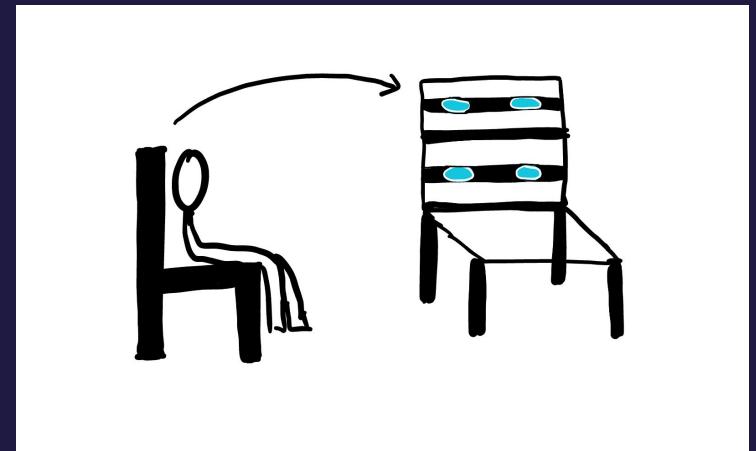
- Corporate employees spend **8+ hours** a day sitting, often with **poor posture**
- Leads to back pain, fatigue, and reduced productivity
- “Chronic back pain accounts **for more than 264 million lost work-days per year** in the U.S.” (USBJI, 2014)
 - > 2 days/year/employee
- Existing posture tools are uncomfortable, expensive, and **not** user-friendly





Solution Overview: PosturePal

- A **Smart Chair System** with an **integrated Bedrock agent**
- Tracks posture with pressure and positional sensors
- Chatbot interface provides users with:
 - Posture trends at the end of the work day
 - Explanations of when and how posture declined (hourly)
 - Personalized tips and exercises for the next day





Market & Business Impact

Primary Users: Office workers, remote employees, students

- Secondary Users: Healthcare programs

Total Addressable Market

- ~132 M full-time US workers
- Global ergonomic product market: \$13B by 2028



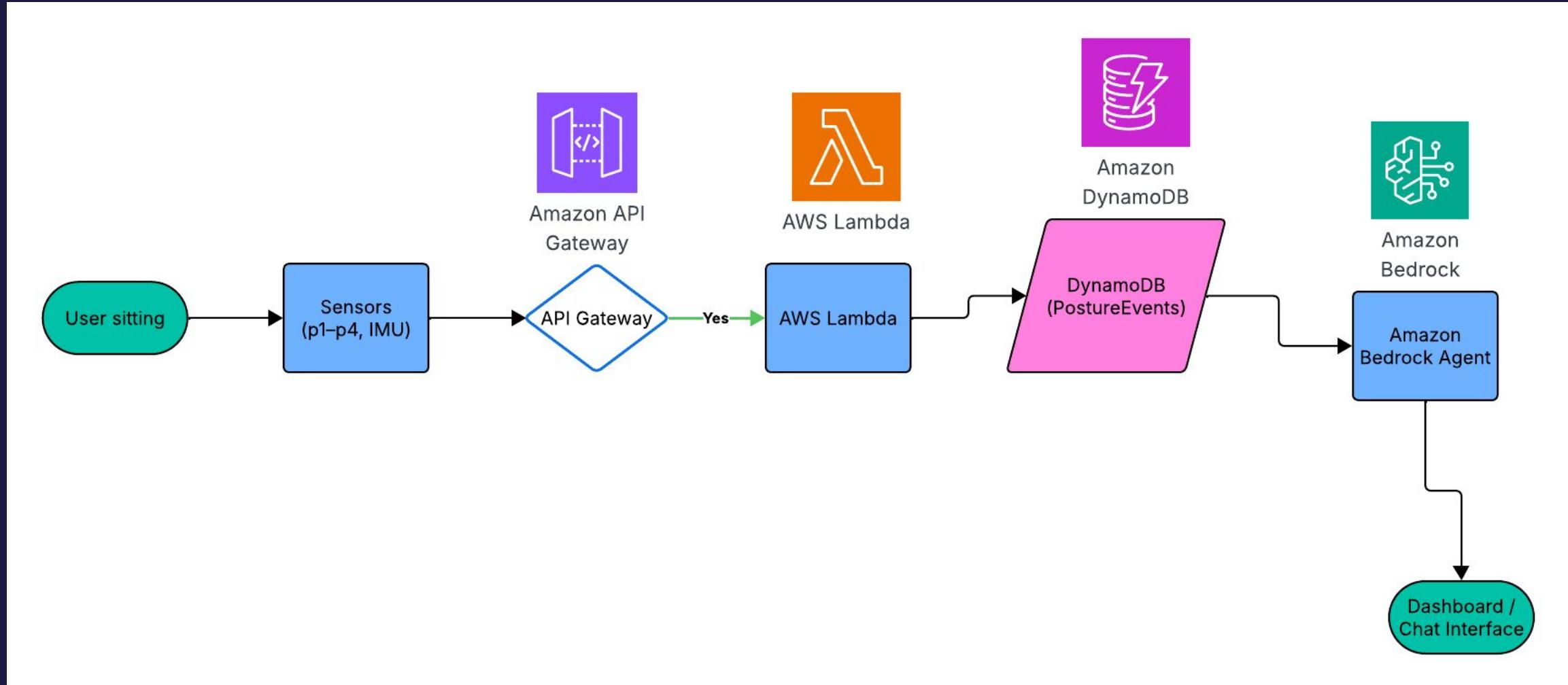
Competitors: posture wearables, smart cushions, ergonomic apps

Why us!

- Smart posture insights, long-term tracking, personalized guidance, affordable, scalable, and user-friendly!



Technical Architecture & Implementation





Success & Security

Metrics

- Posture improvement: % reduction in slouch time
 - Expect a reduction of **~30% within 2-4 weeks**
- Productivity Impact: Self-assessed or HR initiative
- Retention rate: Use of PosturePal after 30 days

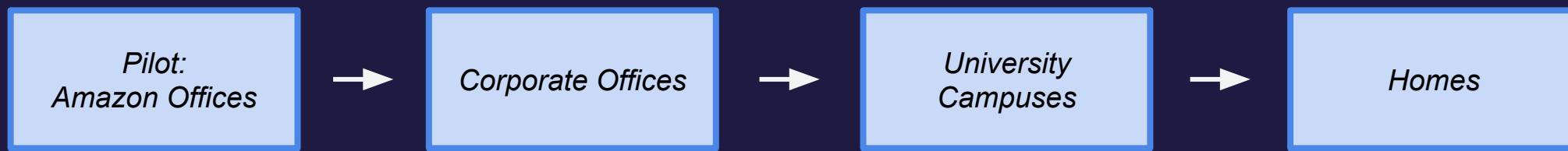
Data Security & Liability

- HIPAA (Health Insurance Portability and Accountability Act) for integrating with healthcare
- Personalized recommendations need medical disclaimers



Scalability & Future Roadmap

- Expand analytics with **computer vision**
- Implement **voice AI** for spoken alerts
- **Stepwise deployment:**



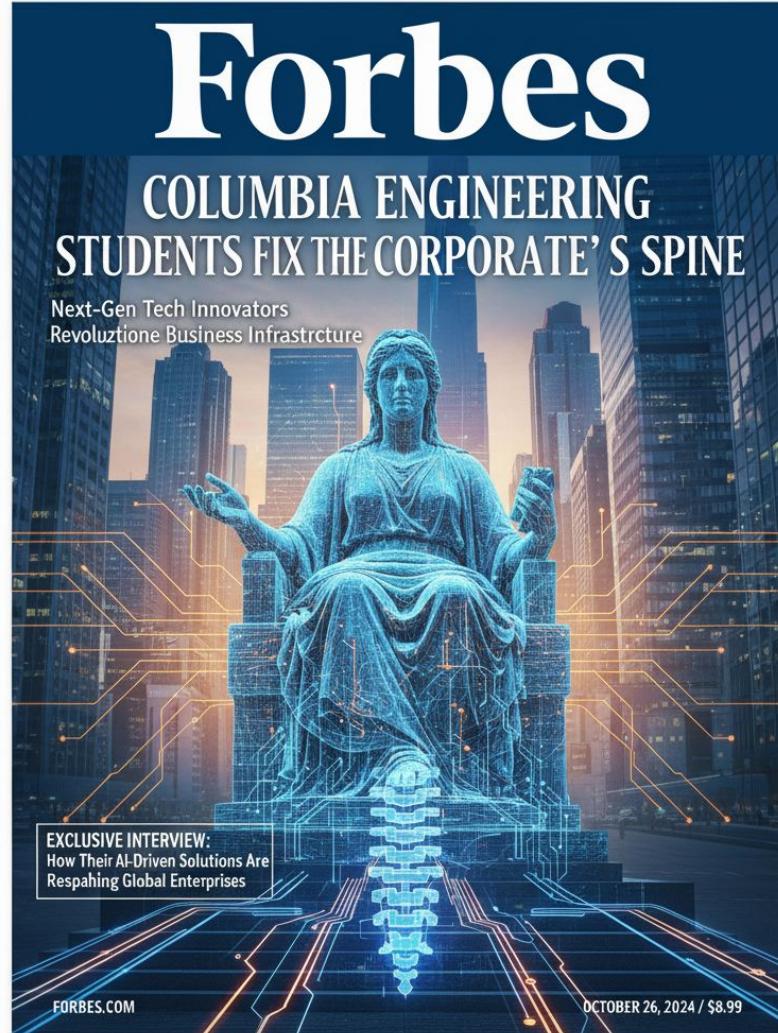
- **Platform integration** with wellness initiatives and calendars
- **Long-term:** Add gamification features, predictive analytics, multilingual abilities for global impact



Live Demo



Thank You!



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