

AlertCap™

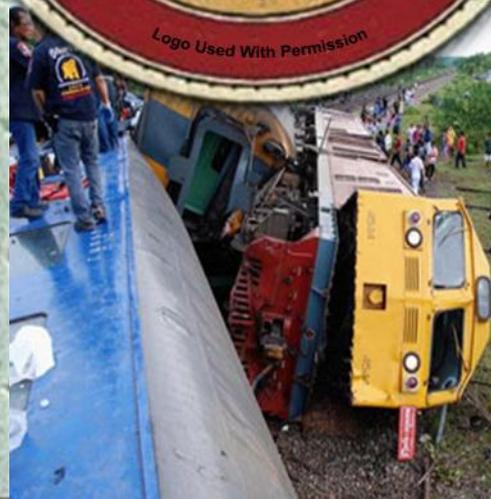
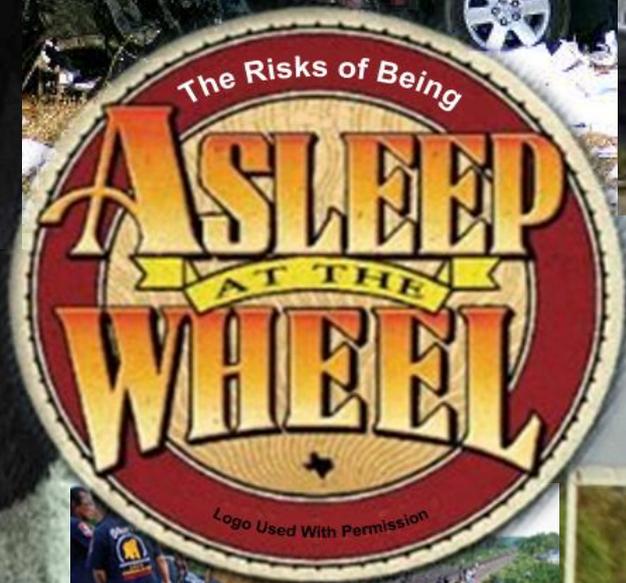


**Keeping our
troops and civilians
awake, alert, and alive**

Helen C. Sing

**U.S. Army Medical Research and Materiel Command
Walter Reed Army Institute of Research
Psychiatry and Neuroscience Division**

WBT 2010
Arlington, TX
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The AlertCap™ Will Detect Drowsiness and Alert You Before Something Bad Happens

- For drivers and others who need to stay awake and alert during extended monotonous activities, the AlertCap™ is a wearable personal warning system that buzzes you back to alertness.

AlertCap™ uses brainwaves to catch you earlier than eyelid or head nodding tracking systems to ensure your safety.

Problem: People Performing Critical Tasks Are Injured and Die From Losing Alertness or Falling Asleep

U.S. National Highway Traffic Safety Administration:

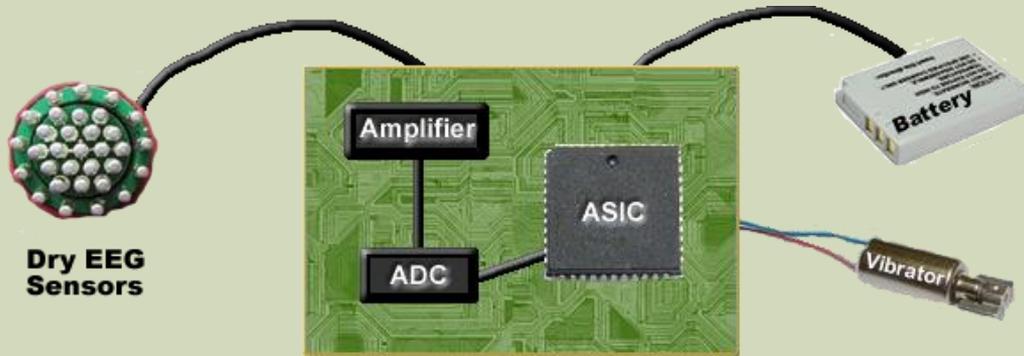
- Each year tired drivers are involved in more than
 - 100,000 vehicular crashes
 - \$12.5 billion in losses
 - 71,000 injuries
 - **1,500 fatalities**

2005 U.S. poll conducted by the National Sleep Foundation:

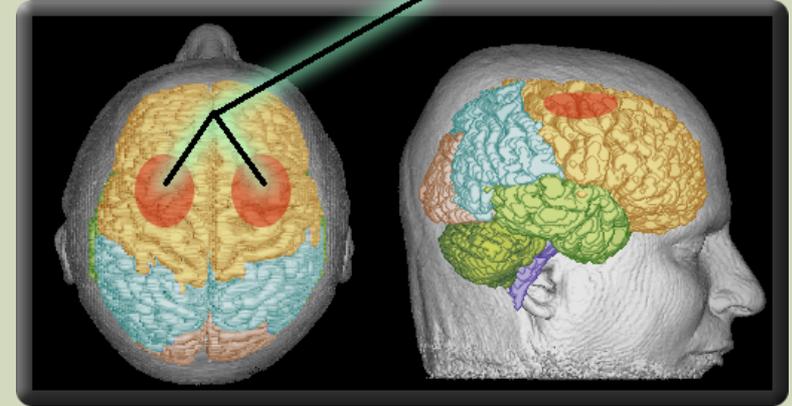
- 60% of us had driven while feeling sleepy
- 37% admitted to falling asleep at the wheel
- 4% percent had an accident or near accident because they were too tired

Do you want your airline pilot, train operator, nuclear plant supervisor, security guard, or oil tanker pilot to dose off?

Solution: AlertCap™ Continuously Monitors EEG Brain Waves and Immediately Sounds An Alarm Before You Lose More Alertness



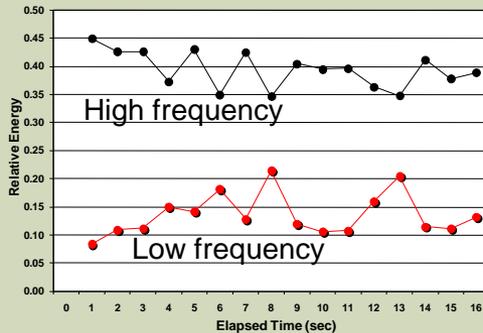
EEG Monitors the C3/C4 Brain Regions



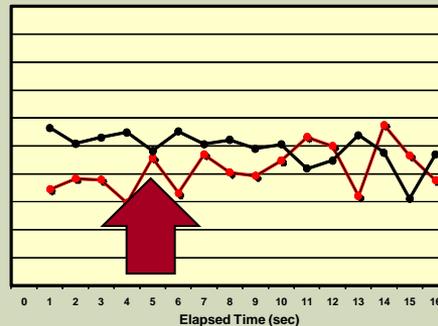
Patent Status:
Application Pending
USSN 339,864

High and Low Frequency EEG Bands

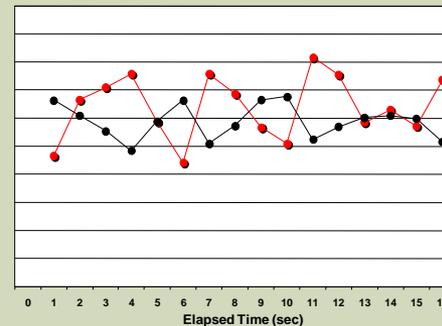
Awake



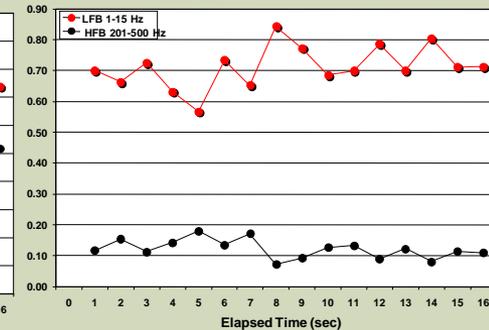
Neutral



Drowsy



Asleep



**AlertCap™
Buzz**

Head Nodding

Eyelid Closing

Slower
Reactive
Costlier & more complicated

Market Opportunities: Industrial, Civilian, and Military

U.S. Addressable Industrial Markets	# Personnel
Maritime Transportation	84,000
Railroad Transportation	125,000
Air Transportation	132,000
Taxi Drivers	229,000
Bus Drivers	653,000
Truck Drivers	3,356,000
Material Moving Operators	4,825,000
Power Plant Operators	47,000
Quality Assurance Inspectors	491,000
Production Assemblers and Fabricators	2,075,000
Firefighters and Paramedics	562,000
Police	861,000
Security Guards	1,049,000
TOTAL	14,489,000

Source: <http://www.bls.gov/OCO/>

U.S. Addressable Market Segments By Number of People

Civilian= 200 m
 Industrial= 15 m
 Military= 1.5 m

Business Opportunity

Civilian= \$20-60m
 Industrial= \$38m
 Military= \$9m

Product pricing similar to noise cancellation headphones \$200-300@

We are uniquely positioned to work with other government agencies to help establish regulatory requirements.

Commercialization Plan: Looking for Development Partners and Licensees

Development Needs

EEG Model Has Been Developed and Validated

6m
Headgear Prototype Engineering:
COTS: Signal acquisition and processing, power supply, notification buzzer

CRADA

1y
Field Testing: DOD and DOT and Licensee

License

1y
Market Adaptation
Manufacturing and Commercialization

Product Lines



Personal Version (\$250)

- No data transmission
- Consumer/trucker



Vicinity Version (\$300)

- Local transmission WiFi
- Industrial/Military



Remote Version (\$350)

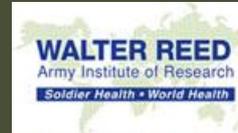
- Distance transmission 3G
- Industrial/Military

Development and Commercial Teamwork

U.S. Army Medical Research and Materiel Command

Walter Reed Army Institute of Research (Neuroscience and Algorithm Development)

- Helen Sing – Lead Inventor
- Thomas Balkin



Army Aeromedical Research Laboratory (Headgear and Performance Testing)

- Arthur Estrada
- Frederick Brozoski



Army Research Institute of Environmental Medicine (Biomonitor Engineering)

- Reed Hoyt
- Louis Banderet



Office of Research and Technology Applications (Technology Transfer)

- Paul Mele
- **Barry Datlof** – Licensing Officer
(301) 619-0033 barry.datlof@us.army.mil
- Sara Miller



POC

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