EMF Bio-Sensors:
Implantables, Wearables, Surveillance BioMetrics

EMF to and from our bodies

"We are witnessing an explosive growth in medical devices that use wireless technologies... to control bodily functions and to measure an array of physiological parameters.

"Implanted devices can control heart rhythms, monitor hypertension, provide functional electrical stimulation of nerves, operate as glaucoma sensors, and monitor bladder and cranial pressure. External devices monitor vital signs, assist the movement of artificial limbs, and function as miniature "base stations" for the collection and transmission of various physiological parameters. Soon, miniature transponders embedded in pills will enable doctors to track and monitor drug use… it is safe to predict that someday wireless technologies will be able to monitor or control nearly every bodily function and movement."

Terry G. Mahn, Chair, Fish's Regulatory & Government Affairs Group

SOME USES OF BIOSENSORS

MEDICAL DIAGNOSTIC PROCEDURES
IMPLANTED THERAPEUTIC DEVICES
LAW ENFORCEMENT TRACKING
MOBILE COMMUNICATION
PERSONAL ACTIVITY MONITORING
PERSONAL LOCATION MONITORING
PARENTAL MONITORING

SOME CURRENTLY AVAILABLE DATA

LOCATION, SPECIFIC OR RELATIVE
AUDIO, VISUAL SURROUNDINGS
3D JOINT MOTION
TILT, ROTATIONAL MOTION
RESPIRATORY RATES, RHYTHMS
HEART RATE, RHYTHM, VARIABILITY
SUBSTANCES IN SWEAT
PH OF FLUIDS
MOISTURE IN DIAPERS
PRESSURE IN SHOES, SOCKS
GLUCOSE IN BLOOD
BACTERIA IN MOUTH
STEP COUNTS, DISTANCE
HOURS OF SLEEP
MONITOR USE OF PHARMACOLOGY
COUNT CALORIES EATEN, BURNED
MOVEMENT THROUGH SPACE
LIP-READING
WRITING WITH FINGER IN AIR

Do EMF bio-sensors change the physiology they are measuring?

Do bio-sensor EMF effects inside our bodies accumulate?

What effects do EMF bio-sensors on/in our bodies have on other living beings nearby?

Which EMF emitters interfere with bio-sensor function?

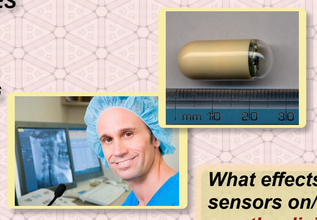
Who collects/owns/controls the data collected by bio-sensors?

Is any research occurring on adverse bio-sensor effects?

How easily are EMF bio-sensors hacked?

As people move through a space with a Wi-Fi signal, their bodies affect it, absorbing some waves and reflecting others in various directions. By analyzing the exact ways that a Wi-Fi signal is altered when a human moves through it, researchers can "see" what someone writes with their finger in the air, identify a particular person by the way that they walk, and even read a person's lips with startling accuracy—in some cases even if a router isn't in the same room as the person performing the actions. mobile, apps, etc.) during drug development, clinical trials and patient care."

Kaveh Waddell, the Atlantic



- Mobile Wearable Nano-Bio Health Monitoring Systems with Smartphones as Base Stations
- Technical Overview of Medical Wireless Integrated Biosensors
- Telemetry Frequency Bands
- Australia: Micro-Chip Implants
- Medical Devices, Security Flaws, Ethics Firestorm
- Future Phone Implanted?
- Medical IoT HTU for Elderly People
- Body-heat powered implanted bio-sensors
- Spray-on Antenna
- Insulin Pump Cyber-Bug
- Brain Chips for Military Use
- Network Infrastructure for Pervasive Bio-Sensing
- Brain Implant Interference worry
- Heat vs Movement powered implanted bio-sensors
- Diagnosed by Your SmartPhone
- Medical Internet of Things, Big Data in Health Care
- Patient-Centric Cardiology: Implanted ECG Bio-Sensors
- Body Heat Makes Electricity
- Feed worms graphene, silk conducts electricity
- Industry: IoT and Smart Wearables Good for Health
- Sensors Journal
- 6 "Must Have" Gadgets?
- Air-Pods: EMF at the Body
- Mouse Implant and Remote Motor Control
- RFID Enabled Wearables

Articles
- Implantable bio-tech
- Graphene in bio-sensors
- Body heat into electricity?
- Turn your eyes into a mouse
- Promise of event related medicine
- AETNA will subsidize Apple Watch
- Phones to send data through bones
- Smart tattoo for smartphone controls
- Implants to speed rail travel, Sweden
- Medical sensors and health marketing
- Egg albumin in bio-dissolvable devices
- Mobile radar for hand motion sensing
- Regulations of wireless medical devices
- Liquid antenna for wearable bio-sensors
- 300 IoT devices: alarming privacy shortfall
- Smart cup tells you how much water to drink
- Workplace wearables, murky legal hinterland
- Workplace wearables, tracking, legal concerns

Biometrics
- RFID implants
- Fingerprint IntelliGo
- Workplace voice analysis
- EEG-eye tracking mobile plug-in
- Cranial bone conduction of sound

Surveillance of our Bodies
- Biometric tattoo
- Body shape, movement
- Facial emotion detection
- Face recognition, line-up
- Facial recognition, privacy
- Heat, motion desk sensors
- Driver-alertness monitoring
- Tattoo, alcohol drinking, police
- Digital pill, biometric surveillance?

Medical Uses
- Bravo pH test
- Dreaming sensor
- Wireless pacemaker
- Wireless biomonitoring
- HealthPatch, VitalPatch
- Monitor specific bacteria
- Stomach acid monitoring
- Video capsule endoscopy
- Smart tampons track flow
- Contact lens, detects illness
- Smart skin, magnetoreception
- Contactless clothing vital signs
- Wireless ubiquitous healthcare
- Sensing bacteria on tooth patch
- Smart tattoo for medical tracking
- Mm wave to monitor vital signs
- Zephyr Harness: heart, breathing
- Wearable tech for mental health
- Brainwave monitoring of workers
- Tooth sensors track what you eat
- Sensors in pills monitor pharma use
- Lactate sensing, oral fluid and sweat
- Heart rate variability, emotion sensing
- Implanted neuro-sensors, brainwaves
- Core temperature monitor with e-pill
- New, smallest chip, implantable into cells
- Smart dust, implantable, ultrasound emissions
- Blood monitoring implant, prevent heart attack
- Cognitive Event Related Biometric recognition
- Injectable health sensors: data to cellphones
- Graphene patch, glucose sensor, metformin delivery

Clothing
- Drum pants
- Snore trainer
- Smart pajamas
- Smart jacket, levis
- Antennas, trackers
- Smart contact lenses
- Denim trucker jacket
- Alexa smart glasses
- Smart hats, visors, helmets
- Internet connected overalls
- Smart slippers, fall prevention
- Text alert if your fly is down
- Future of Fashion Incubator
- Smart shoes, Google maps, vibrate alert
- Electronic glasses for visual impairments
- Smart earplugs, damp noise, enhance whispers

Jewelry
- Watch lets fingertips be phone
- Fitbit: heart, steps, calories burned, sleep
- Count calories, necklace listens, chewing
- Cicret bracelet: changes skin into screen

Toys, Games, Sports
- Smart sex toys
- Sock fitness tracker
- Muse meditation headband
- Smart tennis rackets, sensors
- Motus Sleeve: 3D elbow stress
- AT Glasses to replace all screens?
- Contact lenses, camera, augmented reality
- Oculus Rift: glasses, eye movement as mouse

Baby Care
- Smart socks
- Smart diapers
- Wireless PJs
- Wet diaper alert

EM SPECTRUM

AC MAGNETIC FIELDS
4 MHZ
199 MHZ
440 MHZ
389-2500 MHZ
BLUETOOTH
... more

EMF from Devices
- FitBit
- WSN Exposures
- Safety? Compatibility?
- Pacemaker interference
- BioCompatibility, WSN
- Compatibility testing required

Related Maps
- EMF Bio-Effects
- Nanotechnology
- Cardiovascular Effects
- Data Collection Issues

Home: Oscillatorium
Newest version: this map
Date of this update: 09-29-19

Takeover of Your Body

"Pharma companies long ago realized that just selling traditional medicines will not produce growth nor even sustain competitiveness... as pharmaceutical pipelines dry up, 'beyond-the-pill' businesses can be valuable new sources of revenues. This has created growing interest in methods of utilizing the new technologies and business processes for development and patient care, leading to Pharma IoT.

"The Pharma IoT concept involves digitalization of medical products and related care processes using smart connected medical devices and IT services (web, mobile, apps, etc.) during drug development, clinical trials and patient care."

Dimiter Dimitrov, M.D.