

(12) **United States Patent**  
**Teller et al.**

(10) **Patent No.:** **US 7,689,437 B1**  
(45) **Date of Patent:** **Mar. 30, 2010**

(54) **SYSTEM FOR MONITORING HEALTH, WELLNESS AND FITNESS**

4,377,171 A 3/1983 Wada ..... 600/549  
4,407,295 A 10/1983 Steuer et al. .... 600/483  
4,488,558 A 12/1984 Simbruner et al. .... 600/376

(75) Inventors: **Eric Teller**, Pittsburgh, PA (US); **John M. Stivoric**, Pittsburgh, PA (US); **Christopher D. Kasabach**, Pittsburgh, PA (US); **Christopher D. Pacione**, Pittsburgh, PA (US); **John L. Moss**, Monroeville, PA (US); **Craig B. Liden**, Sewickley, PA (US); **Margaret A. McCormack**, Pittsburgh, PA (US)

(Continued)

FOREIGN PATENT DOCUMENTS

DE 19832361 A1 2/2000

(Continued)

OTHER PUBLICATIONS

Warfighter Physiological Status Monitoring. 1999 MOMRP Fact Sheet No. 6. USAMRMC Military Operational Medicine Research Program. [Retrieved on May 5, 2003]. Retrieved from Internet. URL: <<http://www.momrp.org/publications/WPSM.pdf>>.\*

(Continued)

*Primary Examiner*—Gerald J. O'Connor  
*Assistant Examiner*—Natalie A Pass

(74) *Attorney, Agent, or Firm*—GTC Law Group LLP & Affiliates

(73) Assignee: **BODYMEDIA, Inc.**, Pittsburgh, PA (US)

(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 1813 days.

(21) Appl. No.: **09/595,660**

(22) Filed: **Jun. 16, 2000**

(51) **Int. Cl.**  
**G06Q 50/00** (2006.01)

(52) **U.S. Cl.** ..... **705/2; 600/300**

(58) **Field of Classification Search** ..... 600/300, 600/485, 508, 301, 407, 519, 509, 483, 595, 600/549; 345/741; 705/2, 3; 434/236, 247; 482/8

See application file for complete search history.

(56) **References Cited**

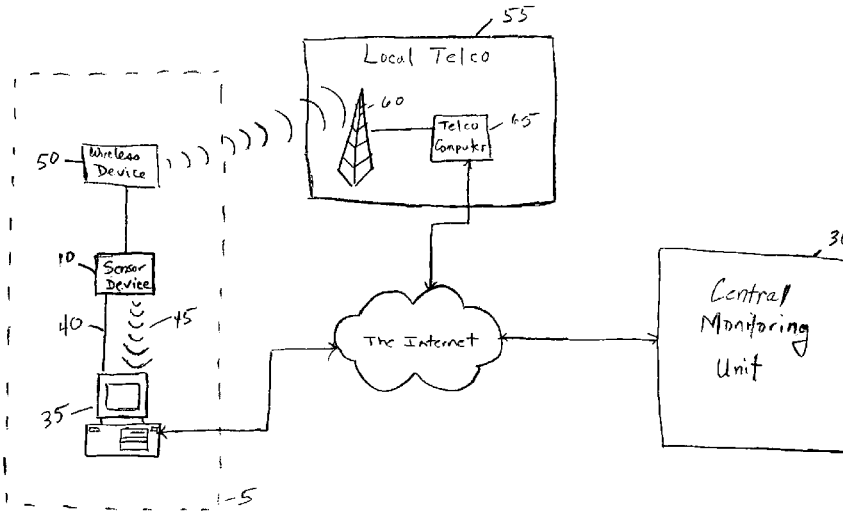
U.S. PATENT DOCUMENTS

4,031,365 A 6/1977 Raggiotti et al. .... 702/131  
4,052,979 A 10/1977 Scherr et al. .... 600/503  
4,129,125 A 12/1978 Lester et al. .... 600/484  
4,148,304 A 4/1979 Mull ..... 600/549  
4,151,831 A 5/1979 Lester ..... 600/549  
4,192,000 A 3/1980 Lipsey ..... 482/8  
4,364,398 A 12/1982 Sassi et al. .... 600/549

(57) **ABSTRACT**

A method for assisting an individual to monitor, control and modify certain aspects of the individual's physiological status according to a preset physiological status goal comprising establishing the goal according to certain preselected physiological parameters, affixing a physiological monitoring device in proximity to the body of the individual, generating data indicative of one or more measured parameters of the individual using said device, and using the one or more measured parameters to determine status information indicative of the relative degree of achievement of the individual's performance with relation to the physiological status goal and providing the status information to the individual. Alternatively, the method may comprise providing, to the individual, information indicative of a suggested change in the individual's performance to assist the individual in the achievement of the physiological status goal.

**55 Claims, 11 Drawing Sheets**



U.S. PATENT DOCUMENTS

4,509,531 A	4/1985	Ward	600/549	5,704,350 A	1/1998	Williams, III	600/300
4,531,527 A	7/1985	Reinhold, Jr. et al.	600/509	5,719,743 A	2/1998	Jenkins et al.	361/683
4,539,994 A	9/1985	Baumbach et al.	600/358	5,724,025 A	3/1998	Tavori	340/573.1
4,557,273 A	12/1985	Stoller et al.	600/551	5,726,631 A	3/1998	Lin	340/573.1
4,608,987 A	9/1986	Mills	600/389	5,729,203 A	3/1998	Oka et al.	
4,622,979 A	11/1986	Katchis et al.	600/515	5,730,140 A	3/1998	Fitch	600/514
4,676,254 A	6/1987	Frohn	600/549	5,738,104 A	4/1998	Lo et al.	600/521
4,757,453 A *	7/1988	Nasiff	73/379.01	5,741,217 A	4/1998	Gero	600/547
RE32,758 E	10/1988	Zartman	128/736	5,752,976 A	5/1998	Duffin et al.	607/32
4,784,162 A	11/1988	Ricks et al.	600/484	5,771,001 A	6/1998	Cobb	340/573.1
4,803,625 A	2/1989	Fu et al.	600/483	5,778,882 A	7/1998	Raymond et al.	600/513
4,819,860 A	4/1989	Hargrove et al.	600/483	5,798,907 A	8/1998	Janik	361/683
4,827,943 A	5/1989	Bornn et al.	600/481	5,803,915 A	9/1998	Kremenchugsky et al.	600/549
4,828,257 A	5/1989	Dyer et al.	482/5	5,813,766 A	9/1998	Chen	374/141
4,883,063 A *	11/1989	Bernard et al.	600/483	5,813,994 A *	9/1998	Pottgen et al.	600/549
4,891,756 A	1/1990	Williams, III	708/132	5,823,975 A	10/1998	Stark et al.	600/595
4,958,645 A	9/1990	Cadell et al.	600/484	5,827,180 A	10/1998	Goodman	600/300
4,966,154 A	10/1990	Cooper et al.	600/484	5,828,943 A	10/1998	Brown	434/258
4,981,139 A	1/1991	Pfohl	600/484	5,832,296 A	11/1998	Wang et al.	710/3
5,007,427 A	4/1991	Suzuki et al.	600/436	5,832,448 A	11/1998	Brown	705/2
5,012,411 A	4/1991	Policastro et al.	600/485	5,836,300 A	11/1998	Mault	128/204.23
5,027,824 A	7/1991	Dougherty et al.	600/515	5,853,005 A	12/1998	Scanlon	600/459
5,038,792 A	8/1991	Mault	600/531	5,855,550 A	1/1999	Lai et al.	600/300
5,040,541 A	8/1991	Poppendiek	600/531	5,857,939 A *	1/1999	Kaufman	482/8
5,050,612 A	9/1991	Matsumura	600/483	5,857,967 A *	1/1999	Frid et al.	600/301
5,072,458 A	12/1991	Suzuki	2/102	5,862,803 A	1/1999	Besson et al.	600/508
5,111,818 A	5/1992	Suzuki et al.	600/390	5,865,733 A	2/1999	Malinouskas et al.	600/300
5,135,311 A	8/1992	Alpert	374/31	5,868,669 A	2/1999	Illiff	600/300
5,148,002 A	9/1992	Kuo et al.	219/211	5,868,671 A	2/1999	Mahoney	600/382
5,178,155 A	1/1993	Mault	600/531	5,871,451 A	2/1999	Unger et al.	600/509
5,179,958 A	1/1993	Mault	600/531	5,876,350 A	3/1999	Lo et al.	600/519
5,216,599 A	6/1993	Uebe et al.	600/551	5,879,163 A	3/1999	Brown et al.	434/236
5,224,479 A	7/1993	Sekine	600/389	5,879,309 A	3/1999	Johnson et al.	600/552
5,263,491 A	11/1993	Thornton	600/587	5,884,198 A	3/1999	Kese et al.	455/575
5,285,398 A	2/1994	Janik	361/683	5,888,172 A	3/1999	Andrus et al.	482/7
5,305,244 A	4/1994	Newman et al.	708/148	5,897,493 A	4/1999	Brown	600/300
5,335,664 A	8/1994	Nagashima	600/508	5,899,855 A	5/1999	Brown	600/301
5,353,793 A	10/1994	Bornn	600/386	5,902,250 A	5/1999	Verrier et al.	600/515
5,410,471 A *	4/1995	Alyfuku et al.	600/300	5,908,396 A	6/1999	Hayakawa et al.	600/587
5,435,315 A	7/1995	McPhee et al.	600/483	5,912,865 A	6/1999	Ortega	368/276
5,445,149 A	8/1995	Rotolo et al.	600/382	5,913,310 A *	6/1999	Brown	128/897
5,458,123 A	10/1995	Unger	600/509	5,919,141 A	7/1999	Money et al.	600/513
5,474,090 A	12/1995	Begun et al.	600/520	5,929,782 A	7/1999	Stark et al.	346/870.01
5,476,103 A *	12/1995	Nahsner	600/595	5,931,791 A	8/1999	Saltzstein et al.	
5,484,389 A	1/1996	Stark et al.	601/34	5,933,136 A	8/1999	Brown	345/741
5,491,651 A	2/1996	Janik	361/683	5,941,837 A *	8/1999	Amano et al.	600/595
5,507,288 A	4/1996	Bocker et al.		5,951,300 A *	9/1999	Brown	434/236
5,511,553 A	4/1996	Segalowitz	600/508	5,956,501 A	9/1999	Brown	703/11
5,515,858 A	5/1996	Myllymaki	600/301	5,959,611 A	9/1999	Smailagic et al.	345/156
5,515,865 A	5/1996	Scanlon	600/534	5,960,380 A	9/1999	Flentov et al.	
5,524,618 A	6/1996	Pottgen et al.	600/306	5,960,403 A	9/1999	Brown	705/2
5,555,490 A	9/1996	Carroll	361/686	5,976,083 A *	11/1999	Richardson et al.	600/300
5,559,497 A	9/1996	Hong	340/573.1	6,013,007 A	1/2000	Root et al.	
5,564,429 A	10/1996	Bornn et al.		6,030,342 A	2/2000	Amano	
5,566,679 A	10/1996	Herriott	600/551	6,032,119 A *	2/2000	Brown et al.	705/2
5,581,238 A	12/1996	Chang et al.	340/573.1	6,047,203 A	4/2000	Sackner et al.	600/388
5,581,492 A	12/1996	Janik	361/683	6,053,872 A	4/2000	Mohler	600/485
5,583,758 A *	12/1996	McIlroy et al.	705/2	6,059,692 A	5/2000	Hickman	482/8
5,611,085 A	3/1997	Rasmussen	2/102	6,067,468 A *	5/2000	Korenman et al.	600/547
5,617,477 A	4/1997	Boyden	381/309	6,091,973 A	7/2000	Colla et al.	600/324
5,622,180 A	4/1997	Tammi et al.	600/503	6,095,949 A	8/2000	Arai et al.	
5,645,068 A	7/1997	Mezack et al.	600/481	6,101,407 A *	8/2000	Groezinger	600/407
5,652,570 A	7/1997	Lepkofker		6,101,478 A	8/2000	Brown	705/2
5,663,703 A	9/1997	Pearlman et al.	340/407.1	6,135,107 A	10/2000	Mault	128/204.23
5,666,096 A	9/1997	Van Zeeland	335/4	6,138,079 A	10/2000	Putnam	702/50
5,670,944 A	9/1997	Myllymaki	340/573.1	6,154,668 A	11/2000	Pedersen et al.	600/361
5,673,691 A	10/1997	Abrams et al.		6,168,563 B1	1/2001	Brown	600/301
5,673,692 A	10/1997	Schulze et al.	600/301	6,184,797 B1	2/2001	Stark et al.	340/870.07
5,686,516 A	11/1997	Tzur	524/394	6,198,394 B1	3/2001	Jacobsen et al.	340/573.1
				6,208,900 B1	3/2001	Ecker et al.	607/17
				6,225,901 B1	5/2001	Kail, IV	340/539

6,248,065 B1	6/2001	Brown	600/300	2001/0032059 A1	10/2001	Kelly, Jr. et al.	702/150
6,251,048 B1*	6/2001	Kaufman	482/8	2001/0044581 A1	11/2001	Mault	600/437
6,265,978 B1	7/2001	Atlas	340/575	2001/0049470 A1	12/2001	Mault et al.	600/300
6,266,623 B1	7/2001	Vock et al.		2001/0056229 A1	12/2001	Cosentino et al.	600/300
6,285,897 B1	9/2001	Kilcoyne et al.	600/350	2002/0019296 A1	2/2002	Freeman et al.	482/4
6,287,252 B1	9/2001	Lugo		2002/0028995 A1	3/2002	Mault	600/437
6,290,646 B1	9/2001	Cosentino et al.	600/300	2002/0032386 A1	3/2002	Sackner et al.	600/536
6,290,650 B1	9/2001	Butterfield		2002/0107450 A1	8/2002	Ogura	600/490
6,292,698 B1	9/2001	Duffin et al.	607/3	2002/0111539 A1	8/2002	Cosentino et al.	600/300
6,298,218 B1	10/2001	Lowe et al.	455/66	2002/0128804 A1	9/2002	Geva	702/188
6,306,088 B1	10/2001	Krausman et al.	600/701	2002/0133378 A1	9/2002	Mault et al.	705/3
6,312,363 B1	11/2001	Watterson et al.	482/54	2003/0055460 A1	3/2003	Owen et al.	607/5
6,315,719 B1	11/2001	Rode et al.	600/300	2003/0069510 A1	4/2003	Semler	600/509
6,327,495 B1	12/2001	Iwabuchi		2003/0083559 A1	5/2003	Thompson	600/372
6,336,900 B1*	1/2002	Alleckson et al.	600/485	2003/0176797 A1	9/2003	Anzellini	
6,339,720 B1	1/2002	Anzellini		2003/0208113 A1	11/2003	Mault et al.	
6,341,229 B1	1/2002	Akiva	600/388	2005/0070778 A1	3/2005	Lackey et al.	
6,364,834 B1*	4/2002	Reuss et al.	600/300	2005/0226310 A1	10/2005	Nakazawa et al.	
6,366,871 B1	4/2002	Geva	702/188				
6,368,287 B1	4/2002	Hadas	600/529				
6,371,123 B1	4/2002	Stark et al.	108/898				
6,377,162 B1*	4/2002	Delestienne et al.	340/286.07				
6,385,473 B1	5/2002	Haines et al.	600/393				
6,416,471 B1	7/2002	Kumar et al.	600/300				
6,420,959 B1	7/2002	Lizzi					
6,450,922 B1*	9/2002	Henderson et al.	482/8				
6,450,953 B1	9/2002	Place et al.	600/300				
6,454,708 B1	9/2002	Ferguson et al.	600/300				
6,466,232 B1	10/2002	Newell et al.					
6,468,222 B1	10/2002	Mault et al.					
6,478,736 B1	11/2002	Mault	600/300				
6,494,829 B1	12/2002	New, Jr. et al.	600/300				
6,513,532 B2	2/2003	Mault et al.	600/595				
6,516,289 B2	2/2003	David					
6,527,711 B1	3/2003	Stivoric et al.	600/300				
6,532,381 B2	3/2003	Bayer et al.					
6,533,731 B2	3/2003	Pottgen et al.					
6,539,336 B1	3/2003	Vock et al.					
6,547,745 B1	4/2003	Rubinstein et al.					
6,551,251 B2	4/2003	Zuckerwar et al.	600/528				
6,551,252 B2	4/2003	Sackner et al.					
6,553,251 B1	4/2003	Lahdesmaki	600/519				
6,569,094 B2	5/2003	Suzuki					
6,571,200 B1	5/2003	Mault	702/182				
6,558,320 B1	6/2003	Causey et al.					
6,579,231 B1	6/2003	Phipps					
6,584,344 B2	6/2003	Hannula	600/509				
6,595,929 B2	7/2003	Stivoric et al.	600/549				
6,597,944 B1	7/2003	Hadas					
6,602,191 B2	8/2003	Quy					
6,607,484 B2	8/2003	Suzuki					
6,610,012 B2	8/2003	Mault	600/437				
6,611,783 B2	8/2003	Kelly et al.					
6,656,125 B2	12/2003	Misczynski et al.					
6,665,559 B2	12/2003	Rowlandson					
6,690,959 B2	2/2004	Thompson	600/372				
6,712,615 B2*	3/2004	Martin	434/236				
6,734,802 B2	5/2004	Halleck et al.	340/669				
6,755,795 B2	6/2004	Mammaropoulos et al.	600/587				
6,790,178 B1	9/2004	Mault et al.	600/300				
6,808,473 B2	10/2004	Hisano et al.					
6,842,877 B2	1/2005	Robarts et al.					
6,852,085 B2	2/2005	Rubinstein					
6,874,127 B2	3/2005	Newell et al.	715/744				
6,920,348 B2	7/2005	Vasin et al.					
6,942,615 B2	9/2005	Suzuki					
6,959,259 B2	10/2005	Vock et al.					
6,968,375 B1	11/2005	Brown					
7,092,846 B2	8/2006	Vock et al.					
7,171,331 B2	1/2007	Vock et al.					
7,454,002 B1	11/2008	Gardner et al.					

## FOREIGN PATENT DOCUMENTS

DE	19911766	A1	9/2000
EP	0 670 064	B1	11/1993
EP	0 707 825	A2	4/1996
EP	0707825		4/1996
EP	0880936	A3	3/1999
GB	2203250		10/1988
GB	2322952	A	5/1997
JP	4341243		11/1992
WO	WO 93/01574		7/1992
WO	WO 94/25841		4/1994
WO	WO 97/06499		8/1996
WO	199859227		12/1998
WO	WO 99/27483		6/1999
WO	01/08554		2/2000
WO	00/11578		3/2000
WO	00/52604		3/2000
WO	00/26882		5/2000
WO	00/32098		6/2000
WO	00/47108		8/2000
WO	00/51543		9/2000
WO	01/28416		9/2000
WO	01/26535		10/2000
WO	01/26547		10/2000
WO	01/28495		10/2000
WO	01/39089		11/2000
WO	01/52718		1/2001
WO	200101093		1/2001
WO	01/56454		2/2001
WO	01/82783		4/2001
WO	01/82789		5/2001
WO	01/89365		5/2001
WO	01/89368		5/2001
WO	02/69798		9/2002
WO	200293272		11/2002
WO	200546433		5/2005
WO	199525946		9/2005

## OTHER PUBLICATIONS

Henshaw, D. The H. J. Andrews Climatological Field Measurement Program. Aug. 9, 1997. [Retrieved on May 5, 2003]. Retrieved from Internet. URL: <<http://www.fsl.orst.edu/Iter/research/component/climate/summary.cfm?sum=clim97&topnav=57>>.\*

"Georgia Tech Researchers Develop First 'Smart T-shirt'," Nov. 14, 1997 press release, Georgia Institute of Technology.

"Personal Health Monitor for Homes," Timo Tuomisto and Vesa Pentikainen, *ERCIM News*, No. 29, Apr. 1997.

"CYBeR-Care Announces U.S. Patent Office Allows 25 Additional Claims for its Internet Healthcare Technologies," *BW HealthWire*, Oct. 7, 1999.

"Nearer to the Heart," Briana Krebs, *Washington Post*, Jan. 17, 1999.

“FDA Clears New Datex-Ohmeda 3900/3900P Pulse Oximeter with World’s First Remote Fax Capability,” *BW HealthWire*, Dec. 3, 1998.  
“Estee Soft Announces New Version of LifeConnect, Providing Advanced Telemonitoring Capabilities for the Mobile Practitioner,” *Business Wire*, Jan. 20, 1999 .  
“Matsushita Electric Works to Sell Home Health Check System,” *The Nihon Keizai Shimbun*, Dec. 17, 1998.  
“A Lightweight Ambulatory Physiological Monitoring System” (undated), Ames Research Center, Moffett Field, California.  
Micro-Foil Heat Flux Sensors, RdF Corporation Catalog No. HFS-A, Mar. 1998.  
Industrial Micro-Foil Heat Flux Sensor, RdF Corporation Datasheet No. HFS-B, Oct. 1995.  
Industrial/Commercial Micro-Foil Heat Flux Sensor, RdF Corporation Catalog No. HFS-C, Dec. 1999.

“A combined heart rate and movement sensor: proof of concept and preliminary testing study,” K. Rennie, T. Rowsell, S.A. Jebb, D. Holburn & N.J. Wareham, 2000.  
“Ironman Speed and Distance System”, (downloaded from [www.timex.com](http://www.timex.com)), Timex, Oct. 4, 2002.  
“Ironman Speed Distance System - Once Again Timex Revolutionizes the Sportwatch”, (downloaded from [www.timex.com](http://www.timex.com)), Timex, Jan. 8, 2002 .  
Polar M91ti Heart Rate Monitor Users Manual —Quick Guide, Nov. 30, 2000, Polar Electro Inc.  
Polar Usa -Product Detail M91ti, Oct. 4, 2002, PolarUSA (downloaded from [www.polarusa.com](http://www.polarusa.com)).  
Polar Usa - Product Detail S-610, Oct. 4, 2002, PolarUSA (downloaded from [www.polarusa.com](http://www.polarusa.com)).

\* cited by examiner

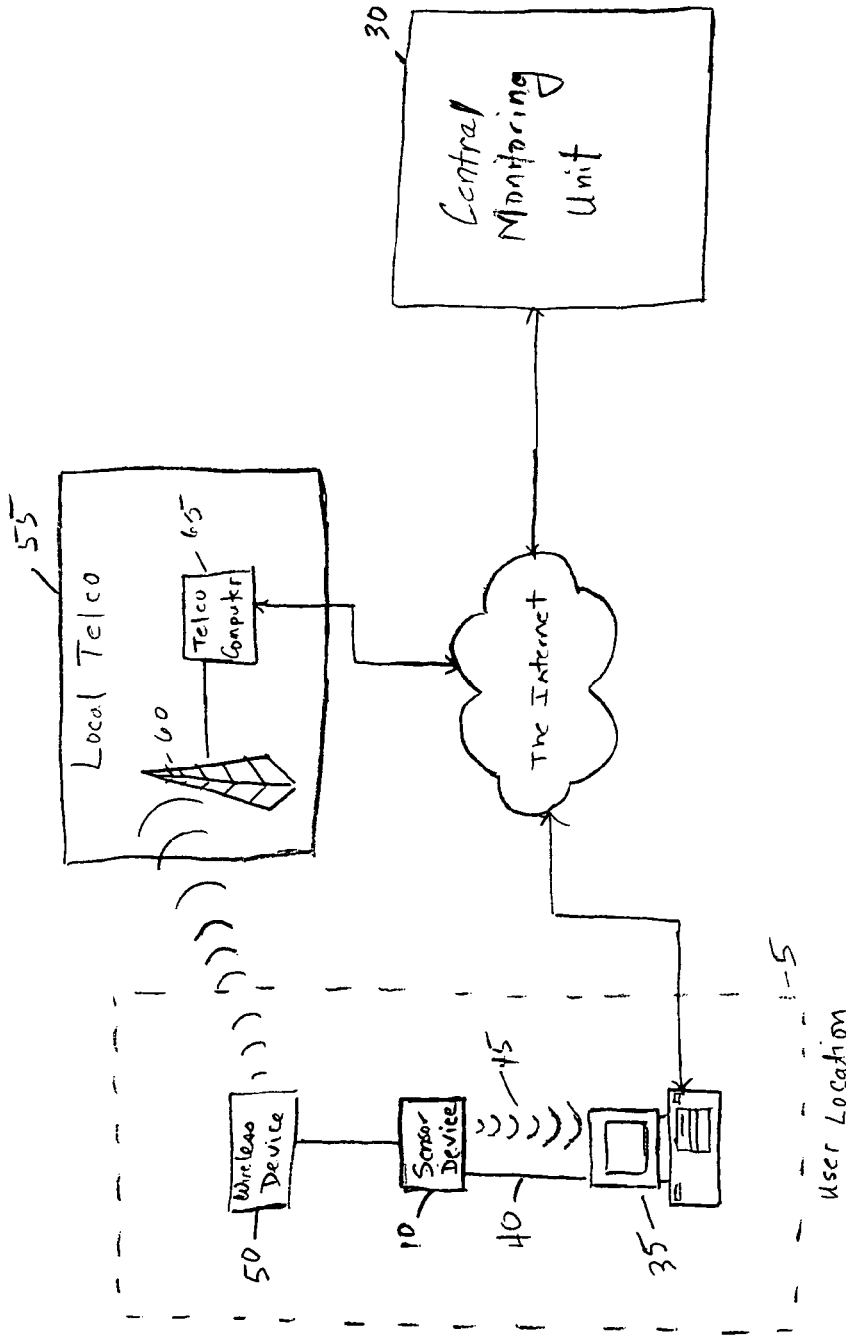


Fig. 1

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.