Legal Advantage

Smartwatch

Research Study with IP Analysis & Mapping

Contents

- Introduction
- Evolution
- Technology
- Patent Analysis - Strategy
- Patenting Activity
- Market Forecast

All content is proprietary and confidential

Introduction

- A Smartwatch is a tiny computer worn as a wristwatch that performs beyond just the functionality of time-keeping.
- The early models performed basic functions such as calculations and games, but the 2010 series smartwatches function like a computer, with the capability to run mobile apps, using a mobile operating system (OS).
- The primary functions of the Smartwatch include: making calls, playing media files, texting and exchanging data, accessing Internet, social networking, monitoring fitness, weather alerts etc.
- They are generally paired with a Smartphone

All content is proprietary and confidential

Background

1941 - The first Smartwatch ‘Mimo Loga’ - Watch that helped in calculations

1972 - Hamilton Pulsar released the first electronic digital watch

1975 - Hamilton Pulsar released the first electronic calculator watch

1977 - Seiko released the C153 leading the calculator/watch market

1982 - Seiko released TV Watch

1985 - Epson RC-20, the first standalone computer watch

1994 - Timex released the Data Link 150 which was the first to transfer between watch and computer

1999 - Seiko Ruputer came out, the first smart watch that our generation would consider “smart”

All content is proprietary and confidential

Background

2001 - IBM launched the first smartwatches that run on Linux

2002 - Fossil released their Wrist PDA

2003 - Timex Data Link USB was the first USB smart watch released

2004 - Microsoft SPOT Watches released

2005 - Fossil releases their Wrist PDA 2.0

2007 - Sony Ericsson MBW-150 – the watch paired with a Sony Ericson phone via Bluetooth

2008 - LG released the GD910

2009 - Samsung released the S9110

All content is proprietary and confidential

Background

2010 – Sony Ericsson launched their LiveView Smartwatch

2011 – Wimm One, the first Android-powered watch was launched

2012 - Sony replaced the LiveView with the SmartWatch

2013 - Sony SmartWatch 2

2014 - Moto 360 was released

2015 - Apple watch was released in April

2016 - Apple launched its second series of Smartwatch

2017 - TagHeuer and Google and many other watch makers are planning their launches in the first half of this year

Legal Advantage

All content is proprietary and confidential

Parts of Smartwatch

OLED Display:

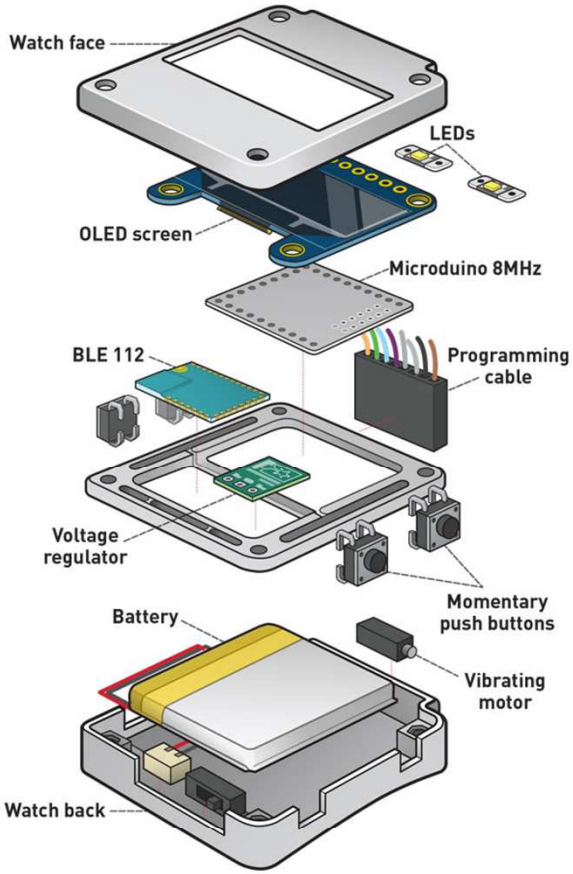
An organic light-emitting diode (OLED) is a light-emitting diode (LED) in which the emissive electroluminescent layer is a film of organic compound that emits light in response to an electric current.

BLE112:

Bluetooth is a wireless technology standard for exchanging data over short distances (using short-wavelength UHF radio waves in the ISM band) from fixed and mobile devices.

Batteries:

Smartwatches typically come with lithium-ion polymer (shortened as Li-Po) batteries. Lithium-ion polymer battery is a rechargeable battery of lithium-ion technology.

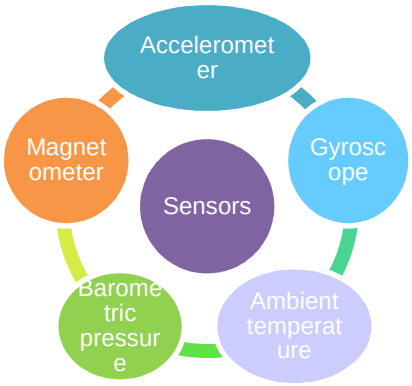


All content is proprietary and confidential

Parts of Smartwatch

Sensors used in Smartwatch:

- **Accelerometer:** An accelerometer is used for measuring the acceleration of a moving or vibrating body. They measure body movement to track your steps and sleep patterns.
- **Gyroscope:** Gyroscopes measure rotation for a variety of purposes. They feed data into exercise-tracking algorithms.
- **Magnetometer:** Magnetometer can be used as a compass. It can be used for improved accuracy in motion tracking.
- **Ambient temperature sensor.** Another relatively simple sensor that could be used in algorithms that report bio-data.



- **Oximetry sensor:** This one measures blood oxygen, a key data point for reporting accurate pulse rates (and thus heart rates).

All content is proprietary and confidential

Scope of work

- IP references that claim smartwatch
- Issued patents and published applications
- IP issuing entities of interest - World wide
- Patents published/issued in all years
- Databases used - USPTO, WIPO, EPO, Orbit, JPO, PatSeer, Thomson Innovation
- Analysis of assignees, technology and trends

All content is proprietary and confidential

Technical focus

A Smartwatch is a computerized wristwatch with functionality such as:

- Mobile apps using a mobile operating system
- Smartwatches function as portable media players
- FM radio
- Bluetooth
- USB
- Headset
- Digital Camera
- GPS
- Thermometers
- Accelerometers
- Compasses
- SD Card

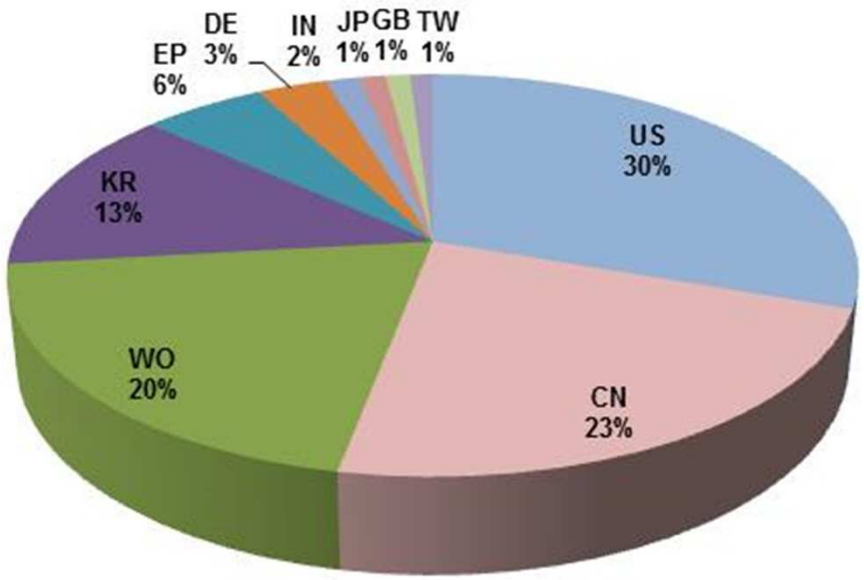
All content is proprietary and confidential

Patent Analysis – Strategy

Steps	Process
Step 1	Brainstorming of the technology
Step 2	Collection of keywords
Step 3	Collection of classification codes
Step 4	Search by keywords, classification codes and combination of keywords and codes
Step 5	Create taxonomy
Step 6	Analysis of results
Step 7	Mapping analysis data into graphs
Step 8	Market Analysis
Step 9	Report Preparation

All content is proprietary and confidential

Patenting activity – Geographical distribution



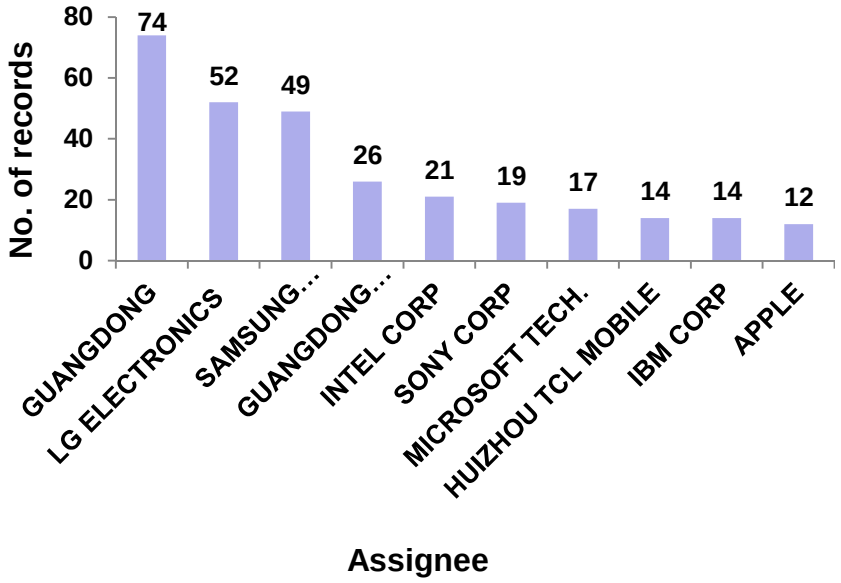
Country code	Countries
US	United States of America
CN	China
WO	WIPO/PCT
KR	Korea
EP	Europe
DE	Germany
IN	India
JP	Japan
GB	Great Britain
TW	Taiwan

- United States is leading in the area of smartwatches followed by China
- Korea is another Asian country who is competing with United States and China

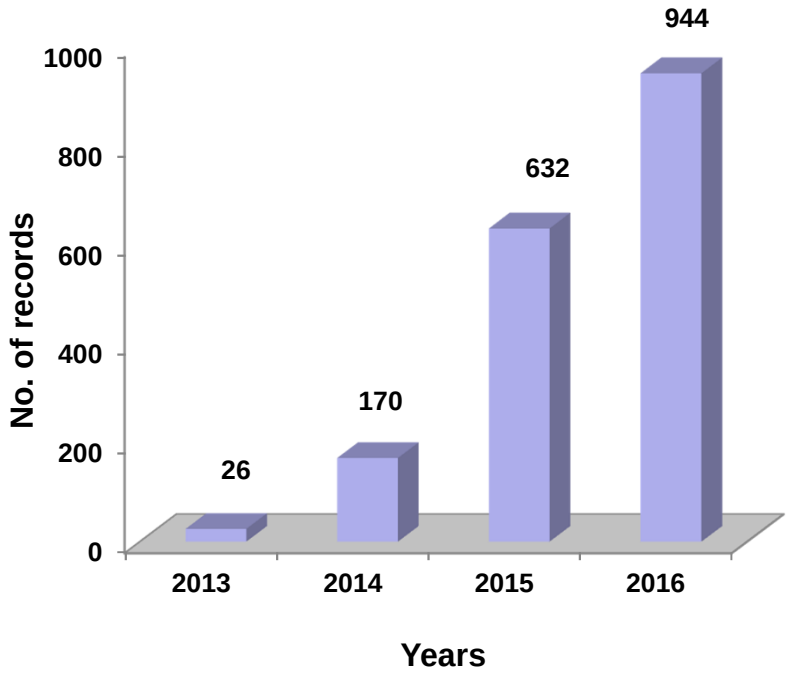
All content is proprietary and confidential

Patenting activity - Major Players & Filing Trend

Major Players



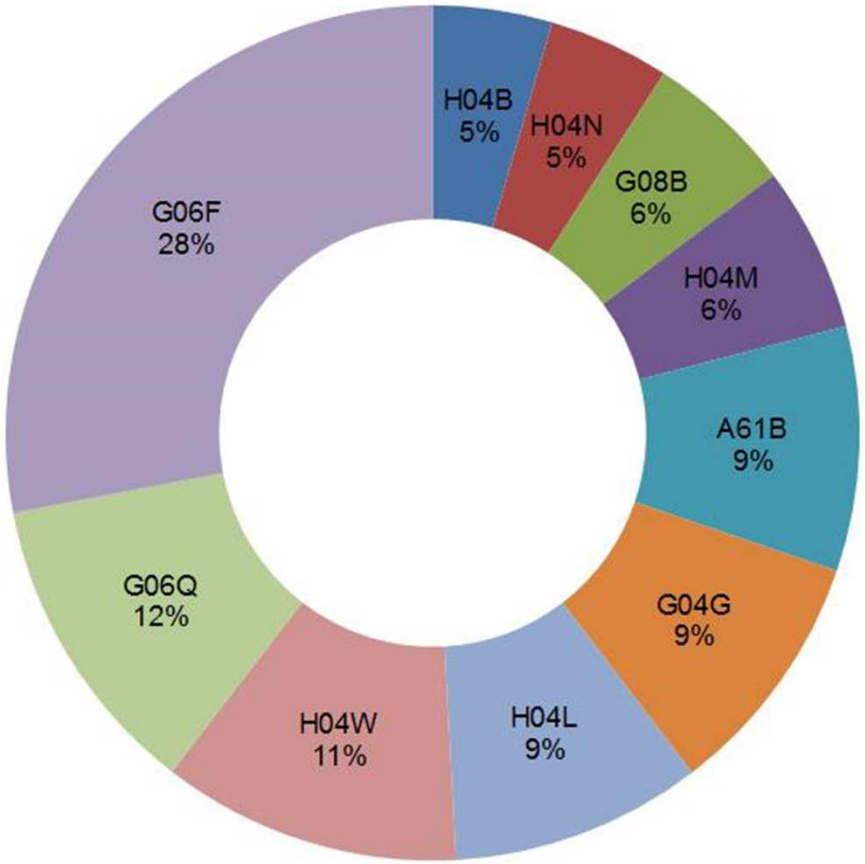
Filing Trend



Legal Advantage

All content is proprietary and confidential

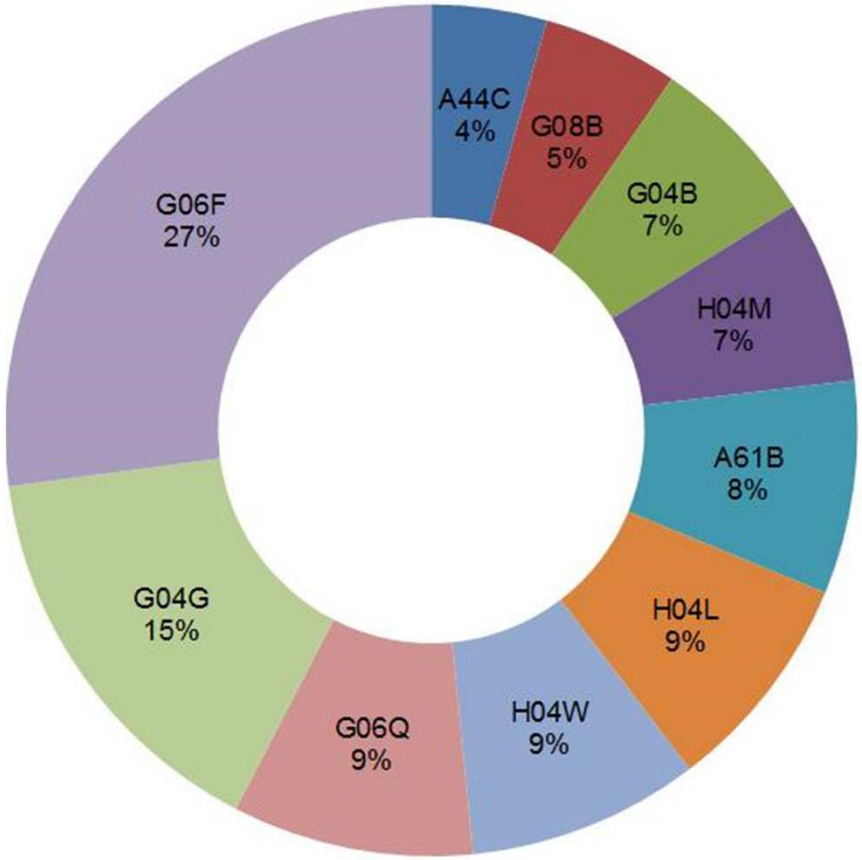
Patenting activity - Classification codes



CPC Codes	Definition
G06F	Electrical digital data processing
G06Q	Data processing systems or methods, specially adapted for administrative, commercial, financial, managerial
H04W	Wireless communications networks
H04L	Transmission of digital information, e.g. telegraphic communication
G04G	Electronic time-pieces
A61B	Diagnosis; surgery; identification
H04M	Telephonic
G08B	Signalling or calling systems; order telegraphs; alarm systems
H04N	Pictorial communication, e.g. television
H04B	Transmission

All content is proprietary and confidential

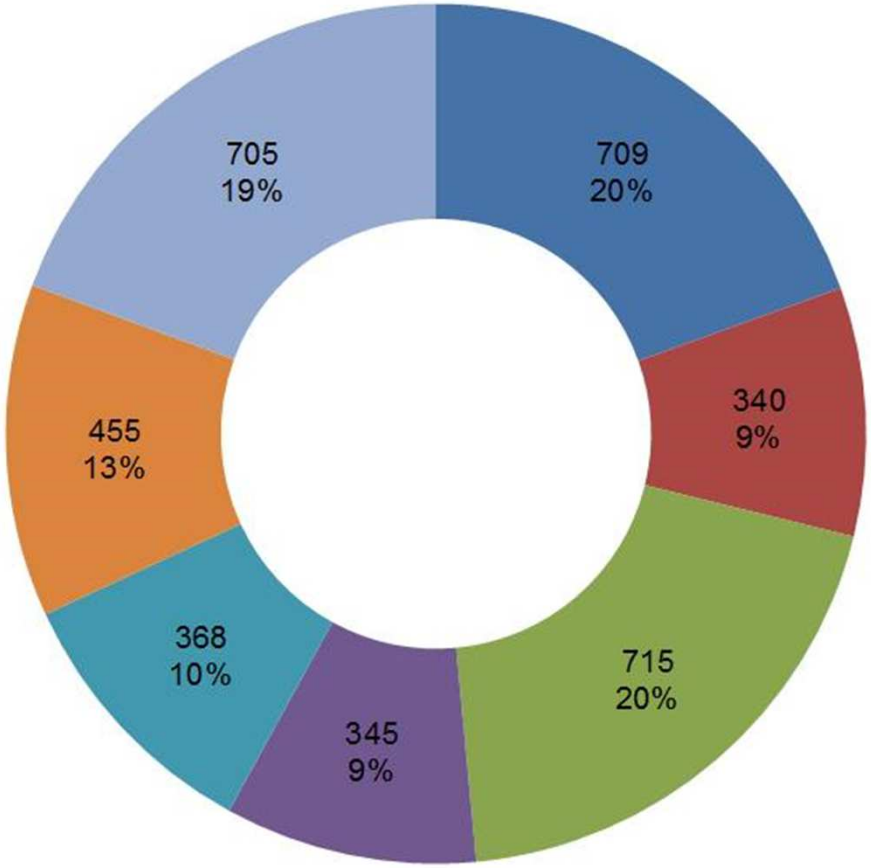
Patenting activity - Classification codes



IPC Codes	Definition
G06F	Electric digital data processing
G04G	Electronic time-pieces
G06Q	Data processing systems or methods, specially adapted for administrative, commercial, financial, managerial, supervisory or forecasting purposes;
H04W	Wireless communication networks
H04L	Transmission of digital information, e.g. telegraphic communication
A61B	Diagnosis; surgery; identification
H04M	Telephonic communication
G04B	Mechanically-driven clocks or watches
G08B	Signalling or calling systems; order telegraphs; alarm systems
A44C	Jewellery; bracelets; other personal adornments; coins

All content is proprietary and confidential

Patenting activity - Classification codes



US Codes	Definition
705	Data processing: financial, business practice, management, or cost/price determination
455	Telecommunications
368	Horology: time measuring systems or devices
345	Computer graphics processing and selective visual display systems
715	Data processing: presentation processing of document, operator interface processing, and screen saver display processing
340	Communications: electrical
709	Electrical computers and digital processing systems: multicomputer data transferring

All content is proprietary and confidential

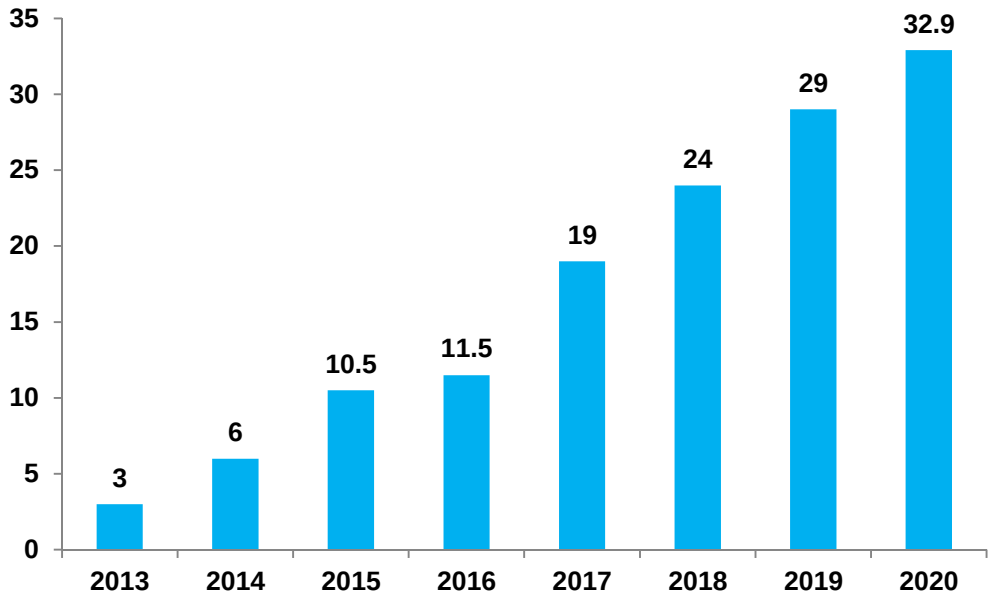
Patent Analysis

Analysis		Communication					Radio	Media		USB	Sensors			Camera
S. No.	Patent/Publication Number	Bluetooth	Wi-Fi	Cellular	3G	NFC		Audio	Video		Thermo-meter	Accelero-meter	Baro-meter	
1	US2016306328A1	Y		Y				Y	Y	Y	Y	Y	Y	Y
2	US8983539B1	Y	Y	Y				Y	Y					Y
3	WO2016036747A1	Y	Y	Y		Y	Y	Y	Y	Y		Y		Y
4	US9367094B2	Y		Y				Y	Y	Y				
5	WO2016053479A1	Y		Y				Y		Y		Y		
6	US2016127624A1	Y	Y	Y		Y	Y	Y	Y	Y	Y	Y	Y	Y
7	CN105372984A	Y		Y		Y			Y	Y				
8	US2016004224A1	Y	Y	Y			Y	Y	Y			Y		
9	US2015049591A1	Y	Y	Y	Y	Y		Y	Y	Y	Y		Y	Y
10	KR20150007584A			Y				Y	Y	Y				

All content is proprietary and confidential

Market Forecast

Smartwatch Annual Sales Forecast



- Global smartwatch market is expected to garner $32.9 billion by 2020, registering a compound annual growth rate of 67.6%.
- The market for smartwatches is witnessing a double-digit growth rate globally.
- North America is a promising and a highest revenue generating geography for smartwatches

All content is proprietary and confidential

Major players in the Smartwatch Market

All content is proprietary and confidential

Please contact us

For more information, please contact us:

www.legaladvantage.net

Disclaimer: *This document is provided for information purposes only. This document, including the information and analysis and any opinion or recommendation, is neither legal advice nor intended for investment purposes.*

All content is proprietary and confidential