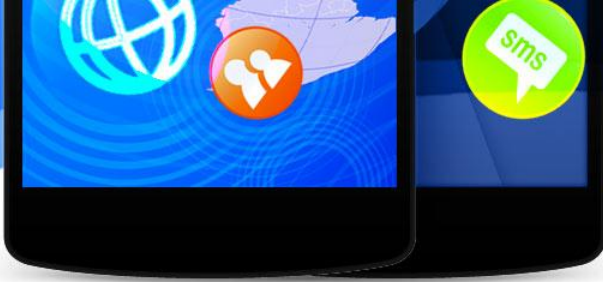




Search Engine for Mobile Devices

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Shilpita Roy
Ziyi Yang



Content

- Domain & Targeted User Base
- Logging
- Search Engine Components
- Short Demonstration
- User Study Results
- Future Work & Conclusion

Domain

- Mobile Devices
 - cellphones, tablets
- Specifications
 - brand, screen size, camera quality, memory, price



Domain

- Crawled websites
 - gsmarena.com
 - phonearena.com
 - phonescoop.com



Domain

GSMarena Search

PHONE FINDER

SAMSUNG LENOVO ZTE HONOR
APPLE XIAOMI TOSHIBA SONY
MICROSOFT ACER VODAFONE INTEL
NOKIA ASUS GIGABYTE VERIZON
SONY DOPPO PANASONIC SONY
LG SAMSUNG SONY SONY
HTC NEXUS SONY SONY
MOTOROLA BLACKBERRY MICROSOFT FUJIFILM
HUAWEI ALCATEL SONY SONY

Apple iPhone 6s

Released 2015, September
143g, 7.1mm thickness
4.7" iOS 9, up to iOS 9.3.2
16/64/128GB storage, no card slot

32%
14,490,265 HITS
701
BECOME A FAN

4.7" 750/1334 pixels
12MP 2800
2GB RAM Apple A9
1715mAh 1.1 Fi

REVIEW **OPINIONS** **COMPARE** **PICTURES** **360° VIEW**

NETWORK Technology GSM / CDMA / HSPA / EVDO / LTE
LAUNCH Announced 2015, September
Status Available. Released 2015, September
BODY Dimensions 138.3 x 67.1 x 7.1 mm (5.44 x 2.64 x 0.28 in)
Weight 143 g (5.04 oz)
SIM Nano-SIM
- Apple Pay (Visa, MasterCard, AMEX certified)
DISPLAY Type LED-backlit IPS LCD, capacitive touchscreen, 16M colors
Size 4.7 inches (~65.6% screen-to-body ratio)
Resolution 750 x 1334 pixels (~326 ppi pixel density)
Multitouch Yes
Protection Ion-strengthened glass, oleophobic coating
- 3D Touch display
- Display Zoom
PLATFORM OS iOS 9, upgradable to iOS 9.3.2
Chipset Apple A9
CPU Dual-core 1.84 GHz Twister
GPU PowerVR GT7600 (six-core graphics)
MEMORY Card slot No
Internal 16/64/128 GB, 2 GB RAM
CAMERA Primary 12 MP; f/2.2, 28mm, phase detection autofocus, dual-LED (dual tone) flash, [check quality](#)
Features 1/3" sensor size, 1.22 µm pixel size, geo-tagging, simultaneous 4K video and 8MP image recording, touch focus, face/ smile detection, HDR (photo/panorama)
Video 2160p@30fps, 1080p@60fps, 1080p@120fps, 720p@240fps, [check quality](#)
Secondary 5 MP; f/2.2, 31mm, 1080p@30fps, 720p@240fps, face detection, HDR, panorama
SOUND Vibration, proprietary ringtones
Alert types Yes
Loudspeaker Yes
3.5mm jack Yes
- 16-bit/44.1kHz audio
COMMS WLAN Wi-Fi 802.11 a/b/g/n/ac, dual-band, hotspot
Bluetooth v4.2, A2DP, LE

MORE
In the news

CHECK PRICE
Amazon
eBay (Wholesale)

APPLE IPHONE 6S REVIEWS

Time-saver edition
APPLE IPHONE 6S REVIEW

The more it changes...
APPLE IPHONE 6S REVIEW

COMMS WLAN Wi-Fi 802.11 a/b/g/n/ac, dual-band, hotspot
Bluetooth v4.0, A2DP, LE
GPS Yes, with A-GPS, GLONASS
NFC Yes (Apple Pay only)
Radio No
USB v2.0, reversible connector

FEATURES Sensors Fingerprint, accelerometer, gyro, proximity, compass, barometer
Messaging iMessage, SMS (threaded view), MMS, Email, Push Email
Browser HTML5 (Safari)
Java No
- Active noise cancellation with dedicated mic
- Siri natural language commands and dictation
- iCloud cloud service
- MP3/AAC/AAX+/AIFF/Apple Lossless player
- MP4/M4V/H.264 player
- Audio/video/photo editor
- Document editor

BATTERY Stand-by Non-removable Li-Po 1810 mAh battery (6.9 Wh)
Talk time Up to 250 h (3G)
Music play Up to 14 h (3G)
Up to 50 h

MISC Colors Space Gray, Silver, Gold
SAR US 1.18 W/kg (head) 1.18 W/kg (body)
SAR EU 0.98 W/kg (head) 0.97 W/kg (body)
Price group [9/10](#)

TESTS Performance Basemark OS II: 1252 / Basemark X: 15841
Display Contrast ratio: 1213 (nominal), 3.838 (sunlight)
Camera Photo / Video
Loudspeaker Voice 66dB / Noise 65dB / Ring 72dB
Audio quality Noise -94dB / Crosstalk -73.4dB
Battery life [Endurance rating 51%](#)

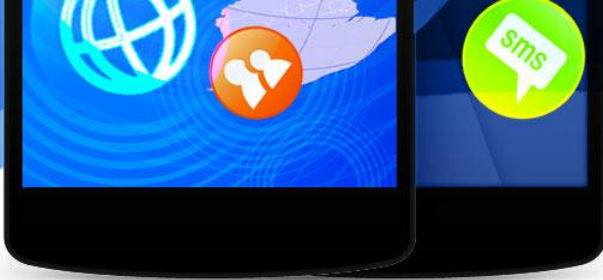
Disclaimer. We can not guarantee that the information on this page is 100% correct. Read more

REVIEW **COMPARE** **PICTURES** **360° VIEW**

APPLE IPHONE 6 - USER OPINIONS AND REVIEWS

RawMarRaines 30 May 2016 8:40
The iPhone 6+ is the worst product ever owned! Not only does it have the worst and highest radiation output, sari should have a name change to sorry - as it says sorry more than any other phrase - Apple keeps putting out garbage I know because I h...

Tony 30 May 2016 8:40
Go for iPhone 6 for clarity and big screen. It's totally waste of money for 6s. Only difference better camera and 3D touch



Domain

phoneArena.com

Site Search

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TIP US

Home > Samsung phones > Samsung Galaxy S6

Samsung Galaxy S6 Featured in BEST ANDROID

Specs Rivals Reviews News Size 360° Benchmarks Video Pics

ANNOUNCED MAR 1, 2015 RELEASED

DESIGN

Device type: Smart phone

OS: Android (5.0, 5.1, 5.0), TouchWiz UI

Dimensions: 5.05 x 2.78 x 0.27 inches (143.4 x 70.5 x 6.8 mm)

Weight: 4.87 oz (138 g) (no storage) 5.3 oz (151 g)

Materials: Main body: glass; Accents: aluminum

Features: Fingerprint (touch)

Colors: Black, Blue, White, Gold

DISPLAY

Physical size: 5.1 inches

Resolution: 1440 x 2560 pixels

Pixel density: 577 ppi

Technology: Super AMOLED

Screen-to-body ratio: 70.48 %

Features: Scratch-resistant glass (Coming Gorilla Glass 4), Light sensor, Proximity sensor

CAMERA

Camera: 16 megapixels

Flash: LED

Aperture size: F1.9

Focal length (35mm equivalent): 28 mm

Camera sensor size: 1/2.8"

Pixel size: 1.12 µm

US CARRIER AVAILABILITY

Available: Verizon, AT&T, Sprint, T-Mobile, MetroPCS, U.S. Cellular, Cricket, Boost Mobile

PHONEARENA RATING: 9.3 Click to read the full review

USER RATING: 9 Based on 1.1 User reviews

PROS

Big display (5.1 inches)

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Each day, multiple news stories, articles, reviews and comparisons roll off the press at PhoneArena, with the sole purpose of informing our readers.

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Empire Case Click to see

CellularOutfitter.com Click to see

POPULAR STORIES

Slither.io strategy and tactics to win 10 curious facts before you start

5 whacked-out games that will save your soul from slither.io addiction

Deal: grab the excellent Google Nexus 6P for just

HD voice:	Yes
VoLTE:	Yes
Positioning:	GPS, A-GPS, Glonass, BeiDou
Navigation:	Turn-by-turn navigation, Voice navigation

CONNECTIVITY

Bluetooth:	4.1
Wi-Fi:	802.11 a, b, g, n, ac, dual-band
Mobile hotspot:	Yes
USB:	USB 2.0
Connector:	microUSB
Features:	Mass storage device, USB charging
Mobile Payment:	Samsung Pay
Other:	NFC, ANT+, Infrared, Tethering, Computer sync, OTA sync

OTHER FEATURES

Notifications:	Service lights, Haptic feedback, Music ringtones (MP3), Polyphonic ringtones, Vibration, Flight mode, Silent mode, Speakerphone
Additional microphone(s):	for Noise cancellation, Video recording
Sensors:	Accelerometer, Gyroscope, Compass, Hall, Barometer
Hearing aid compatibility:	M3, T3
	Voice dialing, Voice commands, Voice recording, TTY/TDD

AVAILABILITY

Officially announced:	01 Mar 2015
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SHOPPING INFORMATION

MSRP price:	€ 899
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REGULATORY APPROVAL

FCC approval:	01 Mar 2015
Date approved:	FCC ID value: A3LSM920F link

iOS 10, overhauled Apple Music, and more: here's what to expect at Apple's WWDC 2016

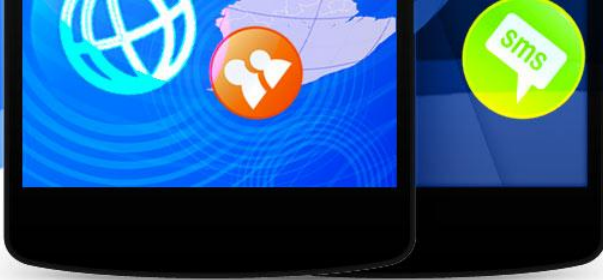


Android N Developer Preview Overview

HOT PHONES



phonearena.com



Domain



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Sony Xperia Z5 Compact

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[News](#)
[Forum](#)

One of the only small, high-end Android phones available, this phone packs the features of the full-size Z5 into a much smaller body with a 4.6-inch HD screen. Key specs include a 23-megapixel camera, Snapdragon 810 chip, and waterproof design. Features also include a fingerprint sensor, NFC, memory card slot, DLNA, and high-quality wired and wireless music.

This phone has not been released yet. All specifications and features are preliminary and subject to change.



[< Previous](#)
[1 of 4](#)
[Next >](#)

Specs

[Compare side-by-side vs...](#)

Modes	LTE 1 / 2 / 3 / 4 / 5 / 7 / 8 / 12 / 17 / 20 / 28 / 40 WCDMA 1 / 2 / 5 / 8 GSM 850 / 900 / 1800 / 1900
Weight	4.87 oz (138 g)
Dimensions	5" x 2.56" x 0.35" (127 x 65 x 8.9 mm)
Battery	Talk: 14.8 hours max. (888 minutes) Standby: 520 hours max. (21.7 days) 2700 mAh Lilon, Non-removable
Display	Type: LCD (Color TFT/TFD) Resolution: 720 x 1280 pixels (HD) (~319 ppi) 4.6" diagonal Colors: 16.7 million (24-bit) Sony Triluminos Mobile
OS / Platform	Android version 5.1.1

Features

[Ungroup Features](#)
[Show all features](#)

Fingerprint Reader	in lock button, on side
Flashlight	Yes
GPS / Location	Type: A-GPS
Water-Resistant	Rating: IPX8 (SCUBA)
Accessibility	
Adjustable Text Size	Yes
Hearing Aid Compatible	Rating: M3, T4 (very tele-coil compatible)
Multiple Languages	Yes
TTY/TDD (Digital)	Yes
Alerts	
Vibrate	Yes
Connectivity	
Bluetooth	Supported Profiles: HSP 1.2, HFP 1.6, QPP 1.2, PBA 1.1, A2DP 1.2, AVRC 1.3, HID , PAN , MAP 1.1 version 4.1 / supports aptX
MirrorLink	Yes
Mobile Hotspot	Yes
NFC	Yes
USB	Connector: Micro-USB
Wi-Fi	Version(s): 802.11 a,a.c,b,g,n supports Wi-Fi Direct

phonescoop.com

Targeted User Base

- People who are looking for new devices or want to upgrade their current devices
- Users who want to understand more about the specifications of their devices



Logging Session

- User logging session is recorded in JSON
 - Queries
 - Number of clicks
 - Number of facets clicked
 - URL clicked
 - List of satisfying URLs
 - List of relevant URLs
 - Session start and end time



Search Engine Components

- Apache Solr
- Stopping and Stemming at query time
 - default english stopwords list
 - a, and, at, or, be, ...
 - EnglishMinimal stemmer
 - remove plurals only
 - Query expansion
 - GB, MB, MP
- Default Solr ranking algorithm
 - Boolean Model and Vector Space Model
 - weighted by tf-idf



Search Engine Components

- Ajax-Solr
 - github.com/evolvingweb/ajax-solr
- 'Manager' sends requests to Solr
- 'Widget' handles responses
 - ResultWidget, MultiSelectWidget, TextWidget,...
- Snippets are taken from description in document metadata



Search Engine Components



- Facet classification documents during crawling
 - brands, camera quality, display size, system memory, price
 - store in metadata
- During indexing, Solr extracts information to fields
 - faceted search on fields
- Removed noise for improved rankings
 - advertisements, navigation, footers

Short Demonstration

- Basic Search Engine
- Advanced Faceted Search Engine



User Study Methodology



- User given 2 tasks one on basic and one in advanced
 - Find a 12 MP, 3.5 Inches Phone
 - Find a \$300 Samsung Phone
- User asked to mark the URL satisfying the task or relevant to the task.
- User asked to fill SUS and TLX questionnaires
- Age group of 15-35 considered in collection of 5 users.

Efficiency



- The total number of clicks is averaged for all users for the basic search and then the advanced search.
 - Avg Basic = 5 Avg Adv. = 3
- The total number of Queries is averaged for all users for the basic search and then the advanced search.
 - Avg Basic = 1.8 Avg Adv. = 1.4
- The paired t-Tests is performed for time per task for basic and advanced search
 - P-score = 0.0932

Effectiveness

- User clicks the checkboxes given for the links satisfying the task
- For each of the tasks users found relevant pages amongst the top ten ranked pages.
- Task 6 and 9 had no answers
 - User did not mark any page as relevant for them



User Satisfaction



- Users were given SUS and TLX questionnaires
- SUS scoring system was used
- TLX was scored through online TLX scoring application
- The scores were averaged for the 5 users
- SUS (Score should be above 68)
 - Basic = 68.5 Advanced = 73
- TLX (Smaller score is considered)
 - Basic = 25.1 Advanced = 19.5

Future Work & Conclusion

- Visualization
 - Number of hits per link
 - Histogram of fetched documents
- Logging session to be stored to database
- Concluding that advanced faceted search has a little edge over basic search with respect to efficiency and user satisfaction.

