

# Future Challenges in Android

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**Abstract--Android is the most commonly used operating system (OS) now days in mobiles. Android of 2015 is a world away from that 2008 version, where the Android Market was in its infancy. There were no native video playback capabilities and the Mobile G1 had no multi-touch support. But Google is going to have to keep innovating and improving its mobile Operating System to keep the lion's share of the smartphone market. We've taken a peek into the future to consider what Android might look like in the year 2022. With new Android monikers now appearing about once a year and Android M (Marshmallow) on the way, its code name should start with "R" - Rhubarb Pie, Rocky Road or Rice Pudding, perhaps? Or maybe even Rollo's, giving Google another chocolate brand tie-up? Here are the Future we think could play the biggest part in Android's ongoing evolution over the next seven years.**

**Keywords-** Google; Hardware; Marshmallow; Future; Android

## I. INTRODUCTION

Android is Google product [1]. Worldwide community is admiring the platform of android due to its open source nature and approval by telecommunication providers [2]. There are different application framework layers containing runtime and system libraries [3]. Cameras, GPS and internet connection are defending resources which use a quite standard resource [4]. Different tools and strategies have been developed by the help of which many kind of issue can be resolved [5]. Android applications can be downloaded using SDK (Software Development Kit) [6-7]. To overcome the problem of malfunctioning in malware patterns in the application of android in order to secure the dynamic and static analysis there exist two different kind of applications [8]. The anomalies of system are detected by event detection modules, file system logs, kernel system logs and network traffic [9]. Open source project including Linux kernel are used to build Android [10-14]. Permission mechanism is fine-grained in Android. Android Application Programming Interface (API) could use different permissions at runtime. Code reusability increases by model application which is based on Android framework force. Android apps break into chains making the monitoring behaviorism. System like UNIX capture source library by the help of Libcap in the Android. Mobile device can remotely control in Android

platform Java can be used to control services to run a group of program on device. Virtual networking computing can be used to perform the most popular remote control devices.

## II. MAPS IN ANDROID

Apple's Maps app may not have set the world alight when it launched, but it's here now, and that means Google needs to up its game to stay ahead. Recent Google Maps refreshes have brought with them a greater level of customization based on your personal searches, and this will only increase in the future. With Google Now tracking your every move, you might already be seeing directions to your favorite pub appear on-screen every Friday lunch time or to the 5-a-side pitch every Monday evening, all handled automatically. By 2022, if the pub in question has an Android-powered bar installed, you might even find your tippie of choice waiting for you when you arrive - there's going to be more automation and personalization in the future, as Maps surfaces what's most important to you. As for all of the services hanging off Maps, Google is already hiring out the Street View cameras and enabling you to peek inside buildings - you can expect Android 2022 to offer better imagery of most public buildings, as well as tippable

info as you move around. Google augments its own data with user-generated content to provide an even more up-to-date view of the world, and once initiatives such as Jump become more established you'll be able to see most parts of the world in stunning detail.

### III. MESSAGING IN ANDROID

Google has already made its intentions clear with the Hangouts and the central role it plays in the company's new Project Fi platform. With Facebook, WhatsApp, FaceTime, Snapchat, Skype et al to battle against, there's no doubt we'll see Google push further into the universal messaging game, covering SMS, email, instant messaging and video calling with tools that are baked into Android and can be accessed from the web too.

In fact, it's a surprise that Google still hasn't unified all of its messaging components. Hangouts seems to be making slow progress and there's still a separate SMS app available in Lollipop. Project Fi may be limited to Nexus 6 owners in the US for now, but it seems to indicate where Google is heading: it eliminates Google Voice, jumps between Wi-Fi hotspots and cell networks as required, and (like Google Voice attempted) uses the cloud as the starting point for calls, texts and other types of communication. That means a unified messaging system - phone calls, texts, IMs - that is associated with your Google account not your SIM card, and which can be accessed from your browser the same way it's accessed from your smartphone. It's only just appearing now, but by 2022 it could be commonplace. Remember Google has its own fiber broadband network too: Don't be surprised to see free 5G video calling and texting between Android devices by 2022, with all of your conversations grouped by person rather than platform, and archived and searchable in Gmail. Eric Schmidt has already predicted that every human will be online by 2022 (no doubt still holding out some vain hope that we'll all have a Google+ page too), and the more people his company can help get connected the better for Google's bottom line.

### IV. PAYMENTS AND SECURITY IN ANDROID

2015 has been the year when mobile payments have really started to come into focus but there's a lot more to come in terms of phones replacing cash and

verifying our identities (everything from getting through the door at work to logging into Facebook). The Android phone of 2022 could automatically log you into Gmail when you sit down at your laptop, for example, or pay for your flight when you step on a plane. Android devices can already unlock Chrome OS instead of a password, so to an extent this technology is already here - but by 2022 it should be almost seamless [15].

We've seen tattoos and pills shown off as possible authentication triggers of the future, and Android 2022 will play a big part in proving you are who you say you are, whether it's at a coffee shop or Google I/O. Basic face recognition is already available, but in the years to come it has the potential to get much more accurate. Fingerprint recognition is coming in Android M and technology such as iris scanning is now coming into play too. Whatever technology emerges at the front of the pack; the good news is you won't have to remember any passwords in 2022.

### V. HARDWARE IN ANDROID

Hardware innovations are going to play a big part in Android's roadmap. Besides the obvious smaller, thinner, faster improvements for our phones, bendable screens should be in place in the near future - the likes of Samsung have the tech already in production, and Android will change to adapt itself through scrolling rivers of news, status updates and other notifications. Ever-changing, ever-optimizing displays will be the order of the day, and the batteries and mobile processors of 2022 should be able to keep up.

Google has developed the following hardware classes.

#### A. *Google Glasses*

Google managed to generate plenty of buzz before it was yanked from sale, and as Glasses and the Apple Watch show, devices are getting smaller all the time. By 2022 Android's main market could be wearables rather than smartphones - it's going to need to be nimble and versatile, which is why apps such as Google Now are so useful. Perhaps you won't need to take photos any more, since Google will simply pick out the best pictures from an unedited stream of the day's events. Nor will you need to decide what to eat for dinner - Android 2022 will know what you've been doing today and what you're probably doing tonight, and will pick out the most suitable foods for you [16].

#### B. *Android Wear smart watch*

Moto 360 is Android Wear's first head-turning smartwatch backed by Google's intelligent software. It has practical information on the virtual dial, but terrible battery life and a slow processor beneath its circular screen. We expect that in 2022, the battery life will be longer, watch has a sensor to detect bar code and voucher, and can recognize the geographical places so can change its mode.

#### D. NEXUS

Nexus is a phone implemented by Google and improve it to be recognized as containing a new feature by receiving the first update from Google and its software is the original copy of google operating system. Nexus contains a developer mode which allowed for the developer to improve their programs with the new features. Google's Nexus devices are the first to get the Android upgrade – one of their biggest selling points is speedy updates and stock versions of Android. The new Nexus 5X and Nexus 6P come with Marshmallow pre-installed, and Google has started rolling out the update to the Nexus 5, Nexus 6, Nexus 7 (2013), Nexus 9, Nexus Player and the whole range of Android One smartphones [17].

#### E. ANDROID (MARSHMALLOW)

The Android Marshmallow update is out now for certain devices. It's just out for the Nexus 5, 6, 7 and 9 as well as the Nexus Player. LG is the first third-party manufacturer to force its update through, and it's out now for those in Poland. Many other manufacturers have also shared schedules for the Android Marshmallow upgrade so read on for more details. Android Marshmallow is here. There are battery life improvements, greater app permission controls, standardized support for fingerprint scanners, more granular volume controls, USB-C support and new Google Now features, and all part of a mix that makes this an exciting upgrade for users. But is your phone actually going to get it. The release process for Android updates is more complicated than that for iOS updates, and just because an update has been launched that doesn't necessarily mean you'll have instant access to it. In fact, you probably won't. It's down to device

manufacturers, and in some countries, like the US, carriers spend quite a bit of time with the new software before releasing it to their phones and tablets.

#### F. THE EXPECTED ANDROID IN 2022

The only certainty about Android's future is that it has a fight on its hands to stay competitive. Apple's iOS 9 has given Google plenty to think about - mostly by borrowing features from Android, like the new "proactive" elements of Siri. Android's continuing integration with Chrome and the desktop/laptop will make for an interesting story too - they're both run by the same man, Sundar Pichai, remember - and perhaps Google's biggest challenge will be to convince us that we can trust it with more and more information about where we are, who we communicate with and the way we live our lives.

#### VI. CONCLUSION

We have found that Android operating system is most suitable to meet growing demands of customers in order to fulfill the security and other features. It's become superior to use as it gives more apps and user friendly Google took a slightly different tactic than Apple. Instead of creating a proprietary piece of software that only works on Apple products, they created an OS that could be used on a wide range of devices. Within a few years, Android proliferated through the Smartphone market and now has a 78% share of the mobile phone market.

I discovered that android has developed tremendously from its start at 2008 till this year 2015. During this seven years Android has developed rapidly and my anticipation that android will develop tremendously

#### REFERENCES

- [1]. Kenney, Martin, and Bryan Pon. "Structuring the smartphone industry: is the mobile internet OS platform the key?". *Journal of Industry, Competition and Trade*, Vol. 11, No. 3, pp: 239-261, 2011.
- [2]. Ongtang, M, McLaughlin, S., Enck, W., & McDaniel, P. "Semantically rich application-centric security in Android". *Security and Communication Networks*, Vol. 5, No. 6, pp: 658-673, 2012.
- [3]. M., Khan, S., & Zhang, X., "Apex: extending android permission model and enforcement with user-defined runtime

constraints", *Proc. 5th ACM Symposium on Information, Computer and Communications Security*, ACM 2010, 328-332.

[4]. Reddy, Nikhilesh, JinseongJeon, J. Vaughan, Todd Millstein, and J. Foster, "Application-centric security policies on unmodified Android", *UCLA Computer Science Department, Tech. Rep 110017*, 2011, pp:1-9.

[5]. Enck, William, Peter Gilbert, Byung-Gon Chun, Landon P. Cox, Jaeyeon Jung, Patrick McDaniel, and AnmolSheth. "TaintDroid: An Information-Flow Tracking System for Realtime Privacy Monitoring on Smartphones", In *OSDI, 10*, 2010.

[7]. Andrus, J., & Nieh, J, "Teaching operating systems using android", *Proc 43rd ACM technical symposium on Computer Science Education ACM*, 2012, pp: 613-618.

[8]. Kristian, Yosi, Hendrawan Armanto, and Michael Frans. "Utilizing GPS and SMS for Tracking and Security Lock Application on Android Based Phone". *Procedia-Social and Behavioral Sciences*, 57, 2012, pp: 299-305.

[9]. Blasing, Thomas, Leonid Batyuk, A-D. Schmidt, Seyit Ahmet Camtepe, and SahinAlbayrak. "An android application sandbox system for suspicious software detection". In *Malicious and Unwanted Software (MALWARE), 2010 5th International Conference on IEEE*, 2010, pp: 55-62.

[10]. Aubrey-Derrick Schmidt, Hans-Gunther Schmidt, Jan Clausen, Kamer Ali Yuksel, Osman Kiraz, Ahmet Camtepe, and SahinAlbayrak. "Enhancing security of linux based android devices". *Proc in of 15th International Linux Kongress. Lehmann*, 2008.

[11]. C. L. Anderson and M. Nguyen. "A Survey of Contemporary Instructional Operating Systems for use in Undergraduate Courses". *Journal of Computing Sciences in Colleges*, pp: 121-183, 2008.

[12]. R. Hess and P. Paulson. "Linux Kernel Projects for an Undergraduate Operating Systems Course". *Proc in 41st ACM Technical Symposium on Computer Science Education ACM, SIGCSE'10*, New York, NY, USA, 2010, pp: 485-489.

[13]. O. Laadan, J. Nieh, and N. Viennot. "Structured Linux Kernel Projects for Teaching Operating Systems Concepts". *Proc in 42nd ACM Technical Symposium on Computer Science Education, SIGCSE'11*, 2011, pp: 287-292.

[14]. J. Nieh and C. Vaill. "Experiences Teaching Operating Systems Using Virtual Platforms and Linux". *Proc in 36th ACM Technical Symposium on Computer Science Education ACM, SIGCSE '05*, New York, NY, USA, 2005, pp: 520-524.

[15] Tomas Holmen. "How Google took a page to secure Android Pay in macword". NY, USA, 2015, pp:134 -147.

[16] <https://www.google.com/nexus/>

[17] Kenney, Martin, and Bryan Pon. "Structuring the smartphone industry: is the mobile internet OS platform the key?". *Journal of Industry, Competition and Trade*. Vol. 11, No. 3, pp: 239-261, 2011.