iJRASET
International Journal For Research in Applied Science and Engineering Technology

# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

**Volume:** 2 **Issue:** XI **Month of publication:** November 2014

**DOI:**

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

ISSN: 2321-9653
International Journal for Research in Applied Science & Engineering Technology (IJRASET)

# Android Beam

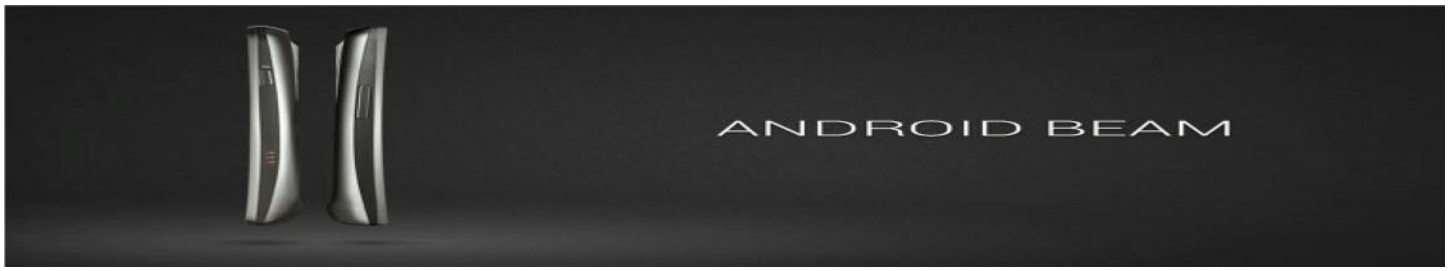
Simran Bhatti[1], Vandana Tayal[2], Pooja Gulia[3]
*Student, Computer Science, Maharishi Dayanand University*
*Gurgaon, Haryana, India*

***Abstract: Android Beam is a Near Field Communication (NFC) implementation that allows two Android mobile devices to transfer data between each other. Android Beam is a feature of the Android mobile operating system to allow data to be transferred via near field communication (NFC).It allows the rapid short-range exchange of web bookmarks, contact info, directions, YouTube videos, and other data. Android Beam was introduced in Android version 4.0 (Ice Cream Sandwich).***
***Keywords: Near field communication, S beam, Android beam, beaming.***

## I. INTRODUCTION

Android Beam is a capability built into Android-based smartphones, tablets and other mobile devices. It first appeared in the Ice Cream Sandwich version of the OS that debuted in October 2011.Android Beam is activated by placing devices back to back with the content to be shared displayed on the screen. If the content is able to be sent, the screen will shrink down and display Tap to Beam at the top. Tapping the screen sends the content from the one device to the other. A sound will play when devices are near and able to beam. When the data is sent, a confirmation tone will play or a negative tone will play if failed and the content will shrink off the screen indicating beaming is complete. Sharing is one direction and the device sending content will not get content from the receiving device. According to Google representatives, we can sum up Beam as this: it is a feature that enables any type of proximity-based interaction. The Android Beam feature allows a device to push an NDEF(NFC Data Exchange Format ) message onto another device by physically tapping the devices together. This interaction provides an easier way to send data than other wireless technologies like Bluetooth, because with NFC, no manual device discovery or pairing is required. The connection is automatically started when two devices come into range. Android Beam is available through a set of NFC APIs, so any application can transmit information between devices.

### *A. What is Android Beam?*




In a nutshell, Android Beam 'beams' the content of one Android device to another using NFC and/or Bluetooth. It allows for quick sharing of trivial content like Play Store app listings, Chrome tabs, Photos, Videos, YouTube links and more. Although Android Beam was introduced in Android 4.0 Ice Cream Sandwich, the feature works best on devices running Android 4.1 or greater. Having been baked into every iteration of Google's mobile OS since Android 4.0 Ice Cream, it is an app designed to make the most of NFC and enables the sharing of just about anything whether it's a contact card, picture, web page or YouTube link. It is a feature of the Android mobile operating system to allow data to be transferred via near field communication (NFC).

### *B. How to use Beam?*

Android Beam is activated by placing devices back to back with the content to be shared displayed on the screen. If the content is able to be sent, the screen will shrink down and display Tap to Beam at the top. Tapping the screen sends the content from the one device to the other. A sound will play when devices are near and able to beam. When the data is sent, a confirmation tone will play or a negative tone will play if failed and the content will shrink off the screen indicating beaming is complete. Sharing is one


©IJRASET 2014: All Rights are Reserved

direction and the device sending content will not get content from the receiving device.

1) *Requirements:* To activate Android Beam, both devices must support NFC (Near field communication) and have it enabled in addition to passing the lock-screen or logging in.
2) *Application Support*

For beaming of specific content, an app is allowed to control the content being sent when adding Android Beam support. If the app does not specify data, beaming the app will open it on the receiving device. If the receiving device does not have the app, it will open the application page in the Play Store.

### C. Sharing content with Android Beam

Before sharing the content with Android Beam, we need to ensure that devices have NFC and Android Beam turned on.

1. On your device, open a screen that contains something you'd like to share, such as a webpage, YouTube video, or place page in Maps.
2. Move the back of your device toward the back of the other device to share with.
3. When the devices connect, your device will make a sound or vibrate and the image on your screen will get smaller.
4. When you see the message **Touch to beam** on your screen, touch your screen to start sharing the content.

5. If the necessary app isn't installed on the other device, Google Play will open to a screen where you can download the app
6. When the beam is complete, your notification panel will say "Beam complete." The other device will display the transferred content in the notification panel.

### D. What is NFC tag?

NFC isn't a fundamentally groundbreaking technology. Like Bluetooth and WiFi, it's a wireless radio communications standard. In the wireless world, NFC's closest relative is actually **RFID (radio frequency identification)**. Retailers and parcel shipping companies in particular love RFID as a way to keep tabs on inventory supplies and shipments.

NFC is a lot like RFID, only it's a more up-close-and-personal type of wireless. Whereas RFID can be used from a distance, NFC readers work at a maximum range of about 4 inches (10 centimeters). NFC readers aren't suitable for RFID-style inventory tracking; their range is too short. So NFC tags will appear in a flood of products and promotional items where bits of digitized information might come in handy. Unlike RFID versions, NFC readers aren't always specialized devices. As a matter of fact, NFC chips will be incorporated right into your Smartphone circuitry. About 20 percent of phones worldwide might have NFC capabilities by 2014. With the widespread reach of NFC phones, NFC tags could one day become as commonplace as bar codes. For example, a smart tag could be embedded into a political flyer. Tap the tag, and you're directed to a Web site touting a candidate's credentials. At the same time, you also instantly receive a snappy biography in the form of a text file and image. Or, at your favorite restaurants, you can touch your phone to an NFC tagged menu and voila -- you have the entire menu on your phone, along with nutritional information



©IJRASET 2014: All Rights are Reserved

and mouth-watering descriptions of the ingredients in your favorite dishes.

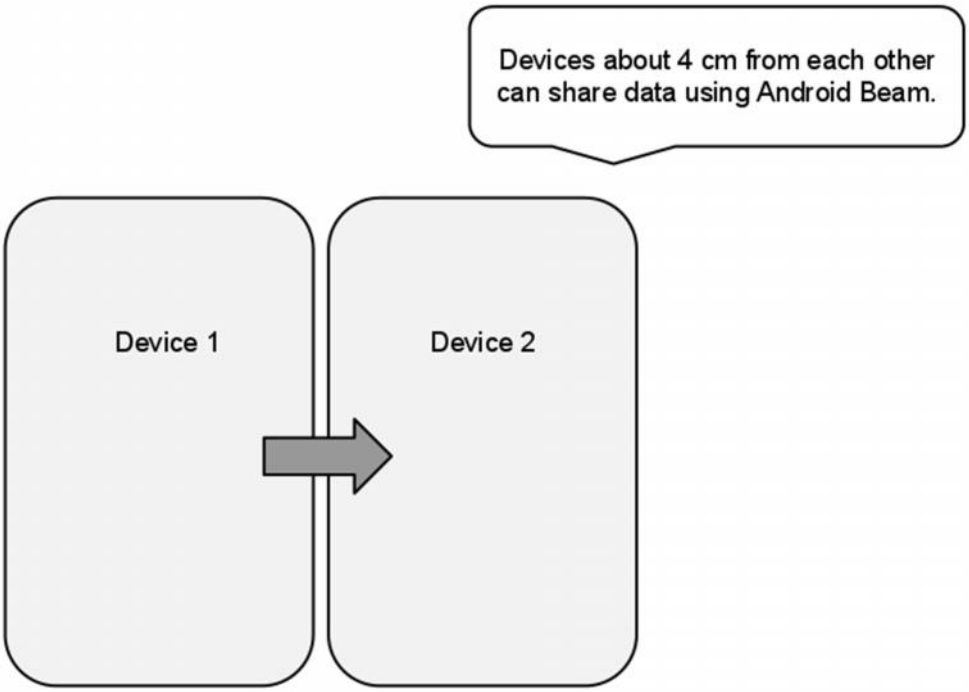
1) *Working of NFC:* At its most basic level, **near field communication** is a standard for very short-range radio transmission. A pair of NFC transmitters can communicate at a maximum of just a few centimeters. Some chips are designed so that the only way they send and receive information is if you've touched the device you're carrying with the one with which you're going to communicate.

2) *The Power of NFC* While NFC technology can do many things, the task most people think of tends to be making payments with a Smartphone. It's a clear, easy to understand scenario. You've finished shopping and you walk up to pay for your purchases. You whip out your Smartphone, hold it up to a receiver at the register, type in a quick PIN to identify yourself and the purchase charges to your electronic credit card. There are already applications that make this method of payment compelling. In 2011, Google Announced Google Wallet and Google Offers, a pair of products that take advantage of NFC technology. The basic function of Google Wallet is what we just talked about -- replacing your physical credit card. But it can also store other information like customer loyalty cards and special offers.

Some illustrations about usage of ANDROID BEAM

Android Beam lets us share just about anything from one phone to another. But first we need a device with NFC capabilities. It can be shown as below

©IJRASET 2014: All Rights are Reserved




## II. LIMITATIONS

One of the biggest problems with Android Beam is NFC and the location of the chips. Availability of NFC is no longer an issue given that it now comes on many of even the cheapest handsets but locating the chip in the first place can be a pain in the posterior. In mobile phones the problem isn't so bad given there's limited space to choose from, but trying to locate the chip on a tablet can be more than a little tricky. This can often be found with a quick search online, although you then have to find a way of putting the two chips together. In tests we found that while the NFC chips recognized each other's presence (with a small vibration) the sending handset occasionally didn't want to register Beam. It is also probably worth pointing out, if not immediately obvious, that Android Beam does only work with Android phones. iPhone's don't even come with NFC on board, at least not yet., and Windows Phones don't want to know.

Whenever radio frequencies are involved, there's a potential security risk. Could it be possible for an unscrupulous person to eavesdrop on communications between NFC devices? The answer is a resounding yes. With the right antenna, hardware and software, it's possible to snoop on transactions. Even though NFC transmissions must take place over very short ranges -- 10 centimeters is the maximum distance, with many applications requiring even shorter ranges -- it's possible to pick up transmissions from much further away. Defining exactly how far away an eavesdropper can be isn't easy. It relies on several factors, including whether the information is being sent in active or passive mode, the type of antenna and receiver the eavesdropper is using and how much power the active component pours into the transmission. It's possible that someone trying to listen in on an active component could get a signal as far away as 10 meters. It's harder to detect transmissions from passive components. Even so, an eavesdropper could detect signals from about a meter away with the right equipment. To prevent someone from getting valuable data -- including your financial information -- hardware and software manufacturers use encryption to keep valuable information away from prying eyes. With encryption, both components need a specific type of key to decrypt information into something useful. An outsider without access to the key would only see gibberish.

## III. WHAT DOES THE FUTURE HOLD?

Since its inception Android Beam has grown to surround sending files via Bluetooth. This works by immediately pairing devices



©IJRASET 2014: All Rights are Reserved

and turning on Bluetooth, sending the file then disabling Bluetooth. We can then move the phones apart as they no longer depend upon NFC.

Just as S-Beam incorporates Wi-Fi Direct so could Android Beam, something that may find favor from the recent Google-Samsung patent licensing deal. This would enable even faster file transfer than Bluetooth.

At a stretch it's not too difficult to imagine Android Beam becoming part of the Internet of Things either, allowing you to tap your phone against an Android enabled refrigerator to share a shopping list or to a potential updated Chromecast dongle to enable Wi-Fi Direct streaming of content to a larger screen nearby.

While NFC hasn't quite caught on as a payment method, there's still a real desire to find cool ways to connect - here's hoping Android Beam keeps getting the development it deserves.

## REFERENCES

[1] NFC Forum. "Frequently Asked Questions." (Feb. 2, 2012) http://www.nfc-forum.org/resources/faqs/

[2] NFC Forum. "NFC Forum Technical Specifications." (Jan. 28, 2012) http://www.nfc-forum.org/specs/spec_list/

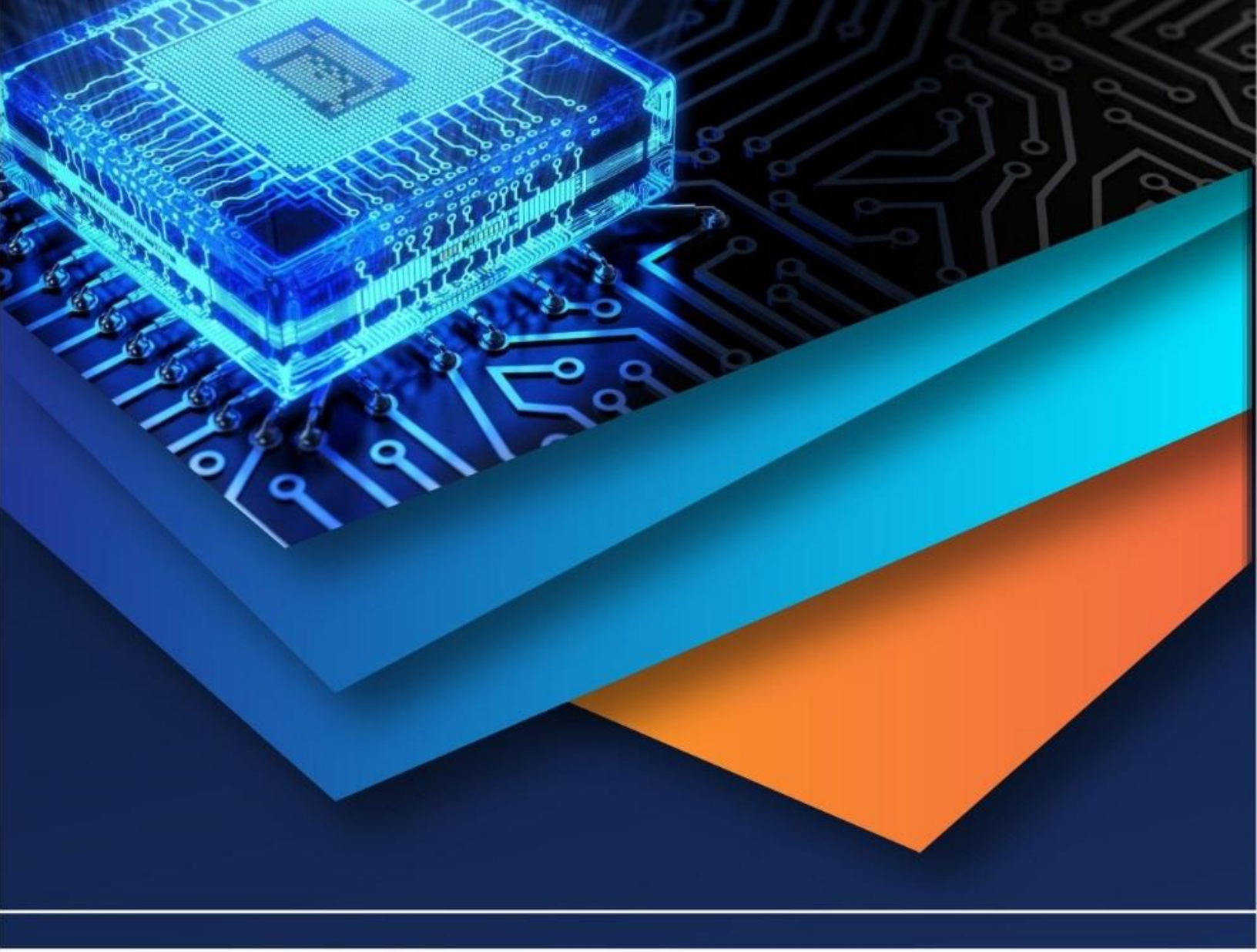
[3] NFC Forum. "The Keys to Truly Interoperable Communications." (Feb. 6, 2012) http://www.nfc-forum.org/resources/white_papers/nfc_forum_marketing_white_paper.pdf

[4] http://electronics.howstuffworks.com/near-field-communication6.htm

[5] http://electronics.howstuffworks.com/android-beam2.htm



©IJRASET 2014: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)