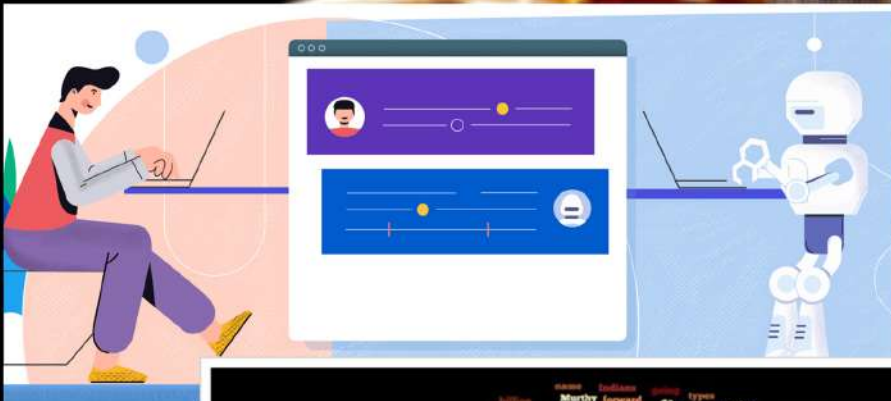


# NEWTON'S APPLE

**FEBRUARY**

**2021**



...HYGIENIC  
MISTAKES  
...HEAVEN  
ON EARTH



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Wordpress

# PREFACE

*Dear readers,*

*It gives us immense joy and satisfaction to unleash the february Edition, Which would be a short version because of current academic schedule.*

*In this edition , we have tried to bind together the topics from diverse fields into condensed form to give you an intriguing experience. It represents the creative side of our students to a fair degree- something that we all need to reconnect with, amidst our busy schedules of semester exams.*

*We thank all of those who stood by us patiently and helped in wrapping up this edition with in limited deadlines. To be sure to maintain the momentum of our publishing record. Be sure to know that there is more to be written and certainly more to be read in the forthcoming editions. So, brace yourselves to be amazed and enlightened.*

*Any suggestions to improve the quality of the magazine would be gratefully received and incorporated in the subsequent editions. Hope each one finds this informative and creative.*

## Happy Reading !

- TEAM NEWTON'S APPLE

# CONTENTS

**01** MSP AND PROTEST

**02** ROTOFARM

**03** HEAVEN ON EARTH

**04** THE FUTURE OF CHATBOTS

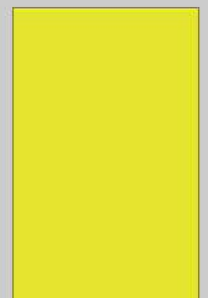
**05** SILHOUETTE ART

**06** RFID

**07** HYGIENIC MISTAKES

**08** QUANTUM COMPUTERS

**09** STARTUPS FOR YOUTH



# MSP & PROTESTS

All the print media and social media might have filled your feed with the news about ongoing Farmers Protest. You must be wondered why in 2020, peace is no more in India. Right from Shaheen Bagh protest against CAA to present protest at Delhi borders, the entire media shifted their focus on those protests, roads were blocked, many activities disturbed. What do we know about them? One thing is sure that the protests started 5 months after the bill passed in the houses.□□

The anti-Farm Bill protests are anti-Farmer. They are the manifestation of two narratives. One, hatred for PM Modi and every single scheme he ever comes with. Two, the age-old battle of communism with capitalism, the battle of delivering a choice vs dictating a command. One hopes Modi doesn't wake up one day & recommend breathing in of clean air or these dunderheads will pick up axes in their thousands and begin chopping trees.



**Farmers At Singhu Border**

The article deals with the second narrative stated above. Here I would not give a detailed explanation about what the reforms are but aspects related to them. This article also covers the hypocrisy of the so-called leaders and how they are misguiding the farmers. □I will also include some of the extremist ideologies and how they are harmful to India.

□  
Caveat: This article is not intended to hurt any ideology, not to support any party. It merely based on the facts and written in the interest of readers, the Indian citizens.

## Learn and Know

Minimum Support Price(MSP)□is a “minimum price” for any crop that the government considers as remunerative for farmers and hence deserving of “support”. It is also the price that government agencies pay whenever they procure the particular crop.

MSP is not something that Opposition, unions and farmers should be fighting for putting in the law, **chit bhi meri pat bhi meri**.

These reforms are not about PDS and MSPs. No government in history provided better MSP than NDA Government. UPA bought 1.5Lakh Metric Tonne pulses at MSP, NDA in the same span 2014-19,76 lakh Metric tonne at MSP. For oilseeds, UPA 3.6 LMT and NDA 30. Neither are these reforms about forcing farmers away from selling their products through the existing corrupt system. It is about giving a man of choice. These are reforms promised and advocated by Congress yet again Modi is fulfilling them. □MSPs are not transferred by DBT, except in Punjab, where they go through the middlemen. **“Dalaronko Bachathe Bachathe kudh dalari bangaye aur kisanonki jindagiyan thaba kardi”**. □But that’s what Socialism and Communism are. Their single aim is to restrict or remove choices, to force people to follow the anti-Darwinian germ system, that only result in death and misery. For just 5 years in our 70 years, we jumped socialism under PV Narasimha Rao government. Those 1991 reforms are to provide a choice. There is a reason why the communist symbol is what it is, they want us to keep using those tools, but Indian Farmers reject their archaic tools and obsolete ideas.

These reforms are to give choice to farmers but not to exploit the APMCs, that’s how progress and development happen, through evolution Darwinian Competition, through expansion monopolies on an over-bearing state, through morally just capitalism.

## Hypocrisy and the misguide

From Bhatinda (in Punjab) to Bengal the river of hypocrisy is flowing, and all those who oppose these agriculture reforms are enjoying a holy dip in it. Some Mid-Night farmers(hypocrites) are sipping champagne and preparing to take a holy dip in the river of hypocrisy. These people(apart from real farmers of Punjab and Haryana) namely, Kisan Unions, VIP enclosures, some communist leaders etc. wanted APMC □act amended, they wanted Swaminathan committee not implemented, they wanted ECA gone, blasted government for excessive procurement, they blamed MSP for economy inflation, now they write column yard in papers and appear on choreographed video chats to oppose exactly that. Before this river of hypocrisy meets the ocean of hypocrisy, we usually see the placard-carrying gang, all enjoying the fruits of capitalism, they protest against building a dam on this river, which actually prohibit the irrigation of their vast fields of ignorance and fake narratives.

One has to look beyond the hypocrisy and what one sees makes one worry for this country. One realizes that even though all these political parties, communists play even the fears of MSP, the farmers, arhatiyas(middlemen), no work is to be derived, arhatiyas were there because the government created them. Humans are not dinosaurs that a single impact can turn them extinct. You can discard an unproductive work but not an unproductive worker. We have to induce flexibility in the economy, a quarter of our adult population being involved in agriculture is unsustainable. Over dependency on a job, (that) will die in an evolutionary death, because competition, food choices, speed, machine would replace it, but dependency on socialism spawns exactly such scenarios. Even though Dr Ambedkar refuses to add the word socialism, it runs in our veins, we have glorified it without knowing the devastating consequences. People and communists say, "ask the farmers", sure, ask those 48% farmers who in a survey said that they don't want their next generations to pick up farming. Ask why farmers cultivating 350B kgs of sugarcane using Quadrillion liters of water when sugar prices were halved in these 5 years. Then you'll understand that the fault is not of farmers or arhatiyas but that of policymakers and of government for not bringing these reforms.

## MSP: good or Bad?

Beyond the matter of doublespeak, beyond the matter of hypocrisy, I would like to focus on MSP. MSP had been made into the crux of these protests. The government had said that it is ready to give written assurance of MSP continuity. I don't know why it has done that, although they didn't mention the removal of MSP. I don't want to judge their decision but I want to concentrate on the devastating effects when law is made for guarantee of MSP, which is something against the whole scenario(farmers demand for MSP assurance) happening today. I'm going to discuss something not political but technical.

Concept of MSP originated in the 1960s when we were a food grain scarce nation, not able to feed our own and depended on US 3rd grade wheat import. With the advent of the green revolution, everything changed. Because the MSP encourages sanctioned loot, it has continued. If the government buckles and gives in to guaranteeing MSP, it would be an UNMITIGATED DISASTER for this country. Understand through these points-

- 1) Only 6% of 18 Crore Indian Farmers benefit from the MSP
- 2) The very concept is anti-theoretical to free market and sound economics. Logic tells you that the moment state decides the MSP of farm produce, it leads to excessive production of that product at the cost of other products, this is what happened, and you can understand when you look at the figures of stocks of FCI rising every year than the demand.



3) MSP on wheat and Rice had meant that Punjab grows these grains and govt buys only these grains. The godowns are brimming and rotting with these grains, with up to 30% going waste. Because the government procures way over its needs. Our buffer requirements for rice are 39M tones, but we stocked up with 102M tonnes in 2020.

4) With the MSP increasing year on year to placket farmer and political vote banks, private companies find it cheaper to buy grain from sources other than the states, even imported.

5) With increasing MSP, cost on every value-added along the chain also increases, from seeds to production to retail leading to inflation

6) With no one buying the MSP produce, its quality suffers, the environmental damage for hoarding produce no one wants this immense

7) If MSP wants to be guaranteed for all agricultural produce the government would be shelling out 16lack Crores of our money

8) Fixing of MSP is archaic and prone to miscalculations. ICAR (Indian Institute of Horticultural Research) says Indian Farmers have lost 45 Lakh Crores due to faulty MSP pricing of producing last 15 years

9) 62% of surveyed farmers said that they want to fix their own price for their own produce

10) If you turn MSP mandatory they simply refuse to buy, it is cheaper to import also why should they buy at a price said by state, are we a communist country? Fact is state procures excess at MSP, leading to huge losses. So even the government is not able to sell at MSP, but who wants to listen to

MSP is a Soviet-era legacy, where the state decides everything. For India not to meet the fate of soviet, we must hear to logic but not to this soviet loving sickle

## What happened in recent times?

Understand this, in the backdrop of the farmer's protest, India & UAE have signed an ambitious agreement in which UAE will invest 3 Billion USD in a food processing complex in India which will purchase food grains, fruits & vegetables directly from 22 lakh farmers in MP, UP and Gujarat. The project will involve contract farming on a large scale & will be implemented by Indian citizens living in the UAE. This gradually will be scaled up to \$7 billion investment. The Food Corridor is expected to benefit 2 million Indian farmers and create an additional 200,000 jobs through the establishment of logistics infrastructure and agricultural projects.

## The idea of Protest?



Remember, in the entire post I have never written against the farmers but against the hypocrites stood behind them, who are shooting by standing behind farmers' shoulders. There is nothing more dangerous than a rebel without a cause. It **cannot** be "My WAY, or there's no HIGHWAY". This isn't about the political parties or government, this is about the blockade or the bunk, about what happened and what might happen. To quote, look at what happened to **APPLE factory in Karnataka**, these puppets unleashing anarchism and wanting India to turn once more into a pre-1991 economic basket case. In those (1991 Liberalizations) times, Lakhs of farmers marching towards Delhi, Supreme Court said, I quote "the farmer's protest in 1987 in Delhi's boat club, had the potential to destroy everything, but fortunately, nothing happened". Two statements are jarring. Next, now the SC wanted an assurance from the government that it will not implement these laws till the court heard the matter. Really what is the matter of SC, what is the remit of SC here, does it believe that our parliament elected unconstitutionally? These laws came into effect 5 months ago. Should the government block them retrospectively? then it should also block the 1991s reforms and laws retrospectively.

These protests are causing loss to millions of law-abiding citizens. **Remember that protests and development cannot go hand in hand.**

If you want to do anything in this country, they will stop it, they will protest for Dam, nuclear plant, windmill etc., But the hypocrisy is everyone wants everything, they want all the gadgets in their homes, 24 hours power. This is because we are looking at the problems and we have not taken up the challenge of creating solutions in our minds. I think this is a kind of pre-independence hangover. Mahatma Gandhi brilliantly designed a revolt against the British, not by killing them, not by bombing them but by stopping the activity. Bandh, hartal, satyagraha came from them. It was a brilliant idea for those days because we were conquered. But even today, if you want to become a leader, don't try to build roads or etc., try to gather 100 people and block a highway, make our lives miserable, you'll become a leader. Unfortunately, Yes. You stop the train, traffic, cut the water, cut the electricity, you'll become a leader, if you make something happen you will get ignored of course.

## To conclude

These reforms can transform the lives of 83% of Indian households. Farm bills may not be perfect; specific problematic clauses should be discussed. An example is the dispute resolution mechanism. But, demagogues want to deal in binary-- either you repeal or keep them as they are, which is problematic. Majority of the farmers rely upon their unions. And the same union exploits them. As I said, don't hate blindly, but without any appealing reasons, people rushed to spew their hatred. There is a need to reduce the wedge between what the farmers get and what is paid by the household by reducing the role, number and monopoly power of middlemen as well as by improving logistics.

Making the nation go and making the nation stop are two different kinds of technologies. But we were still doing the same thing, calling for a Bandh, state governments are demanding that they must have a right to call for a bandh, bandh means closure. I cannot understand **how an administration can call for Bandh**. Close down something and you'll rise in your prominence -this must change, we should never identify them as leaders. This must be done by all the citizens. Whoever makes things happen in this country, he must be the **leader**, isn't it?

**JAI HIND**

**BY -**

**K ASHRITH**

**1602-18-735-067**



# **FARMING GADGET- THE ROTOFARM**

## **What is it?**

**I**nspired by space shuttle technology, **ROTOFARM** is a space-efficient vegetable planter that gathers in a 30 centimeters footprint, but it can grow a 1.5 meter long garden .

Rotofarm spins slowly, it rotates a full circle once per hour, eliminating the effect of gravity on plants and enabling them to grow freely and faster. Rotofarm is made from medical-grade stainless steel, frost-smoked glass and durable silicone.

Rotofarm is a wheel of nature perfectly integrating the modern kitchen, reminding us of where our food comes from and the importance of healthy eating. Many plants can be grown inside this kitchen garden, such as lettuce, spinach, mint, rosemary, parsley, small cannabis and other delicious varieties.

*Toby Farmer, the 23-year-old inventor of the device, sees it as his mission to provide a way to get fresh fruits and vegetables to city dwellers.*



## **Effect of gravity on plants...**



Plants respond directly to Earth's gravitational attraction, and also to light. Stems grow upward, or away from the center of Earth, and towards light. Roots grow downward, or towards the center of Earth, and away from light. These responses to external stimuli are called tropisms. Plants' growth response to gravity is known as gravitropism; the growth response to light is phototropism.

Both tropisms are controlled by plant growth hormones. **AUXIN**, is a plant hormone that in high concentrations, stimulates growth and elongation of cells in stems, while retarding the growth of root cells. When auxin is distributed uniformly throughout a stem, all sides of the stem grow at the same rate, thereby enabling the plant to grow toward light and away from gravity. If the plant is tipped over on its side, auxin concentrates on the lower side of the stem, causing the cells on the lower side of the stem to elongate. This process turns the stem so that it once again grows upward, towards the light.

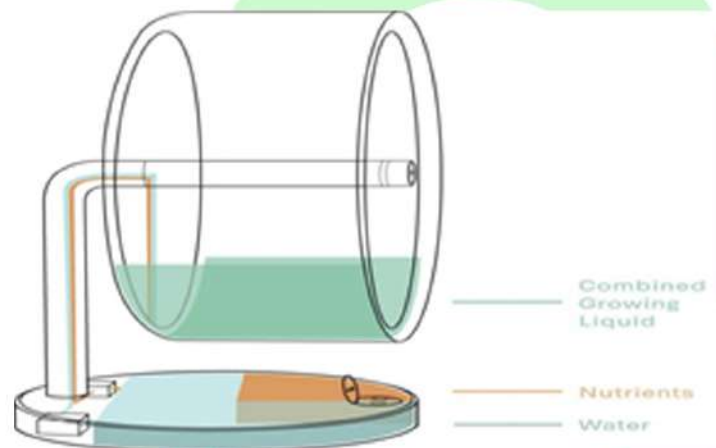


Roots also will change direction when a plant is tipped on its side. Auxin concentrates on the lower sides of the roots and inhibits the elongation of root cells. As a result, root cells on the upper side of the root grow longer, turning the roots downward into soil and away from the light. Roots also will change direction when they encounter a dense object, such as a rock. In these cases, auxin concentrates on the lower side of the roots, enabling the roots to change direction and finds a way around the rock so that normal growth can resume.

*The farmer has to be an optimist or he wouldn't still be a farmer.*

## **ROTOFARM!:**

Maintaining the crop is easy with this, plants are automatically fed with an ideal amount of water and nutrients, with zero waste of water in soil or due to evaporation. It is just necessary to top up liquid levels when they are running low and Rotofarm will ensure vegetables are in ideal growing conditions. To maximize vegetable growth, Rotofarm uses a sun-like lighting LED, whose rays are reduced to 50% by a magnetic climate cover. The cover's outer side enhances vegetable visibility and allows Rotofarm to blend into the environment. The interior side, which is coated in a reflective mirror finish, boosts and distributes light amongst vegetables growing inside. By removing the magnetic cover, the lights dim and the rotation automatically stops, making picking and planting of vegetables extremely easy.



Toby Farmer the inventor of this device encourages users to grow their own food to help reduce land-clearing and deforestation for farms, also reducing the need for plastic packaging in supermarkets, cuts emissions created by the refrigeration and reduces transportation of vegetables across the world.

**By:**

**Jayaprakash**

**1602-18-735-072**



# Heaven On Earth

India is one of the oldest civilizations in the world, spanning a over period of more than 4000 years and witnessing the fusion of several customs, religions and traditions, which reflect the rich culture and heritage.

As a citizen of India, I am proud to talk about India's outstanding tourism, diversity of religions, languages and its unque and unmatched languages and culture.

From ice-skating and skiing at Gulmarg in Kashmir, the temperate climates of Central India, to the blistering heat of the South; from the palm tree covered Western Ghats and the beaches of Goa and Puri to the luscious greenery of Kerala, Meghalaya, Assam and Arunachal Pradesh, geography has offered so much to give and to enjoy such a variety of beauty is enchanting.

**Is the world trip in your bucket list?**

I say that you can see the whole world in India...

**What comes your mind when I say tourist places in India?** Taj Mahal, Red fort, Historical monuments, temples which are extremely famous.

But I am gonna tell you few places in India which are underrated and which are no less than places on foreign land.



Let us now look at a few breathtaking views appearing like heaven which you need to visit at least once in your lifetime.

### **1.The Chitrakote Falls of Chhattisgarh**

The *Chitrakote Waterfalls* in Chhattisgarh is located to the west of Jagdalpur in Bastar district. It is one of the most spectacular natural waterfalls in the world which attracts legions of visitors annually who are eager to witness the “*Niagara Falls of India*” in person. While Niagara Falls is a roaring spectacle, Chitrakote Falls is impressive in its own beauty and appeal



### **2.Dal Lake Floating Market of Kashmir**

Ever fancied yourself shopping for groceries while floating on water? Just like the *Bangkok Floating Market*, Kashmir Floating Market is only one of its kinds in India and the world. But did you know that Dal Lake also has a floating vegetable market? Apart from Kashmir’s Dal Lake being quite celebrated around the world for its scenic beauty and shikaras, it is also well known for the floating market. The market is loud and vibrant, as is typical with most markets, except this one is on the water.

### **3. Alleppey- Venice of the east**

Popularly known as “*Venice of the east*”, Alleppey or Alappuzha is one of the most attractive places in Kerala. Completely connected by waterways to other popular tourist destinations of Kerala – Kumarakom, Cochin and Quilon, Alleppey shall undoubtedly be called the “*gateway of backwaters*”. Alappuzha is indeed the core of Kerala tourism for its magnificent backwaters and house boats. Preferred water channel here is the Vembanad Lake. Alleppey is also popular for its coir products, country boats and wide variety of fishes. Majority of Kerala’s coir industries are located in the neighboring places of Alleppey. With my personal experiences Alleppey is the most beautiful places I have been to.





#### **4. Cinque Island**

A sanctuary with rare corals and under-water marine life, Cinque Island has fine sandy-beach and sand-bar connecting North and South Cinque Islands and a tropical rain-forest. This place feels like a paradise. Must visit for the breathtaking view.

#### **5. Golden Sand beach Kerala**

It is worth visiting Poovar island for Kerala Trip. They take us in motor boat through back waters.

The beach is covered with golden sand while the water is blue. Its surroundings are very neat and clean.

As the river is meets the sea at this place, it has an incredible view of the "Sangam".

I have been there for viewing the sunset which has been a very fascinating experience. It is an amazing and a fabulous place covered with mangroves, resorts, and floating restaurants. One of the resorts was a floating one.

**Must visit places !!**

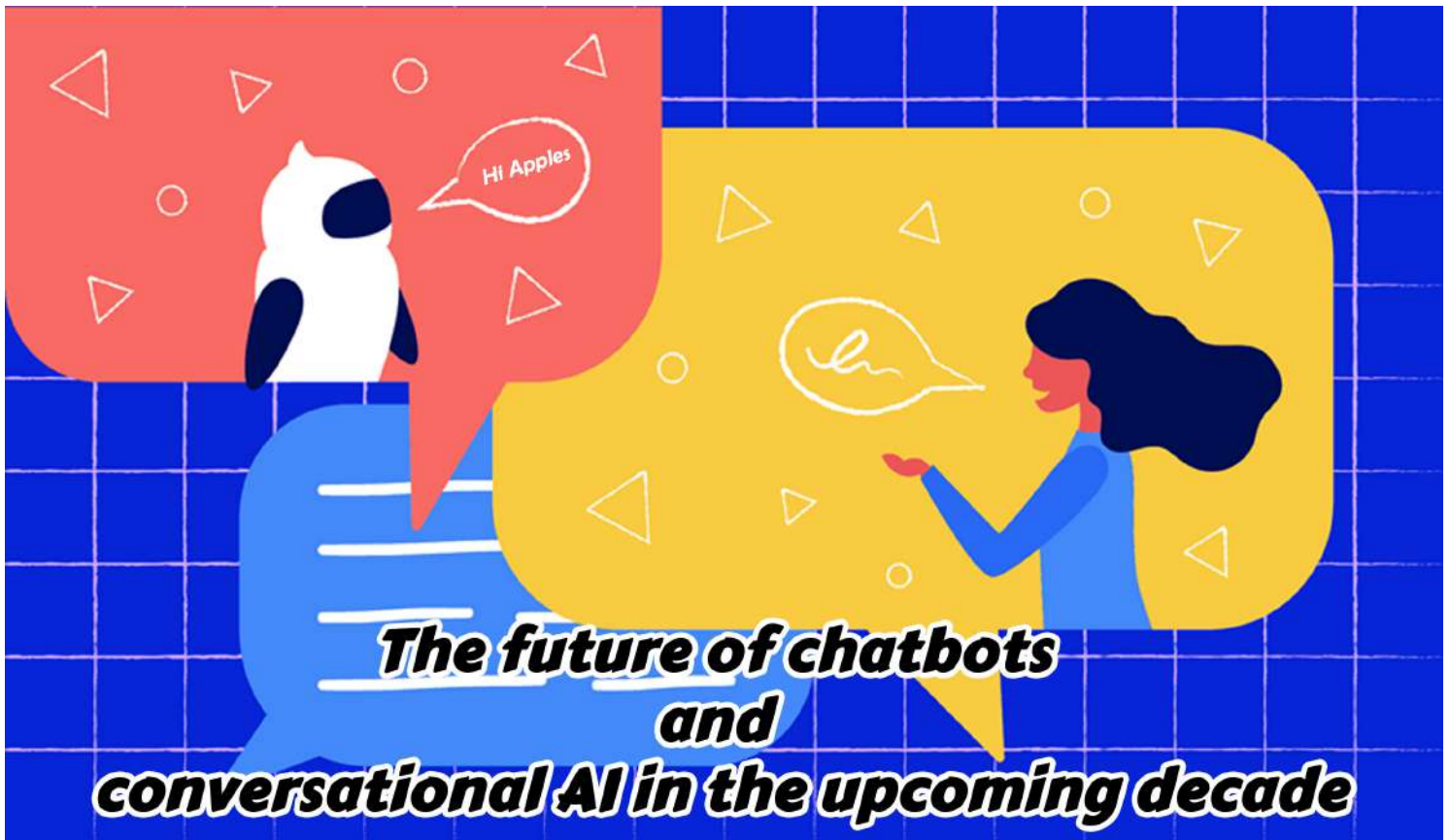


#### **Surprising, isn't it?**

**With a myriad of landscapes, great heritage and culture, varied flora and fauna, India is among the most popular tourist destinations in the world. Head to the mountains, enjoy a beach retreat or cruise through the golden Thar, India has options galore for all.**

**So, why endure a 7 to 14-hour flight when you can experience the world in India? It won't be long before you can say you've really travelled the "world". And with India being 100% safe to travel, the time is NOW!**

**By  
-Dhanushi  
1602-20-735-012**



**T**

*he Golden age of conversational artificial intelligence (AI) is here. Conversational bots or simply put chatbots have applications that range from customer-facing AI assistants, support chatbots, skill chatbots, assistant bots, and transactional bots. The interest of business in this segment is rampant with the huge investments in this emerging technology by governments, healthcare institutions, manufacturing enterprises and so on.*

*Conversational Chatbots are leveraging the power of conversational AI to improve their customer experience, and thereby increase the shareholder returns.*

**Conversational AI Platform and Technology Upgrades:**

*Integrated with Artificial Intelligence and Conversational Intelligence the modern chatbots are classified into*

- *Voice conversational interface.*
- *Text conversational interface.*

**AI HAS REACHED A STAGE WHERE HUMANS CAN EFFORTLESSLY SPEAK TO CONVERSATIONAL AI CHATBOTS**

*What the Future holds for this Exciting Technology? Here are the snippets that explain the future of Chatbots and Conversational AI in the 21st Century.*

**• Customer Interaction Powered by Conversational AI:**

*The role of conversational AI is changing and so are the bots that power it. From answering simple queries to comprehending complex requests expect chatbots to be seen in every domain of modern enterprises. For instance, Generally, the third-largest insurance company in the world, saved US\$1 million in its first year of deployment of a customer-facing cognitive assistant. This Chabot leverages NLP (natural language processing) to convert customer voice queries to text queries, handling and answering the initial queries about home and auto insurance policies and claims.*

### • **Agent-supporting AI assistants**

In the coming times, AI assistants backed by Conversational AI platforms will help human customer service agents with internal support while they interact with customers. A good example would be seen in the BFSI industry where chatbots would help bank professionals to open a customer's account by asking the agents to manually fulfill all the AOP requirements like KYC checks, and collecting proof of address and income details.

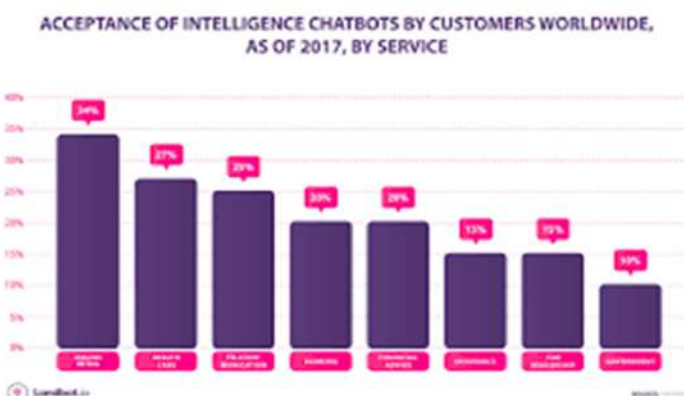
### • **Conversational Bot for Critical Functions**

In the future, expect AI technologies to be deployed in critical lifesaving functions that include elderly care, assisting in life-saving operations and helping with disaster management. Expect a long-term friendship between humans and Conversational AI Platforms to work together for the betterment of business and mankind.

In a crux, Conversational AI is still at its nascent stage and is poised to play a vital role in the development of how humans will interact with machines in the exciting times ahead.

## **What the future holds?**

As per the reports, Chatbots have become “a hyped technology” and is on the way to replace 99% of the apps in the next few years. Going further, by 2022, chatbots are predicted to take over the customer support space generating revenue more than \$8 billion per year. The banking sector is also embracing a success curve with the use of chatbots by 90%.



As conversation AI evolves, there's no doubt that both the businesses and consumers will benefit from the chatbots by less human dependency. However, there specific challenges which conversational AI continues to face — understanding the user intent and recommending/resolving queries as per their particular needs. The human dependency continues to remain.



**WELL WELL WELL!!!** After discussing the growing trend for chatbots in businesses and in the IT sector, one may be curious about building them on their own. We got you covered in that aspect.

Here are three **B2B chatbots** that are generating new leads and increasing conversions.

### **1. Instant Translator:**

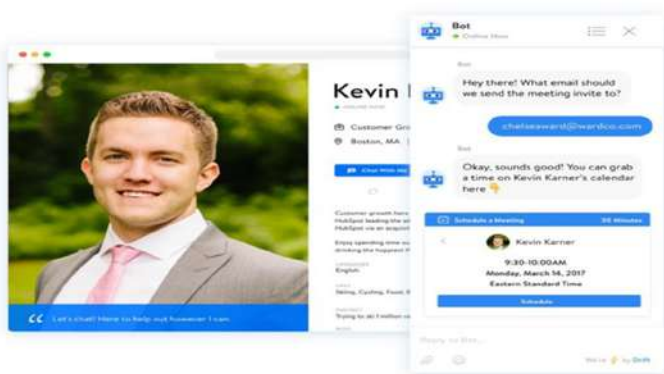
Instant Translator was originally built as a demo to show corporate folk what chatbots are capable of. Despite its modest intentions, it soon became the biggest translation bot on Facebook with more than a million users. Why? Because the team behind it focused on creating the best platform, they possibly could for the people using Instant Translator.

Back then, it was only capable of translating from English to Arabic and Arabic to English. However, Instant Translator now supports 19 languages and counting.

**“**The chatbots of the future don’t just respond to questions. They talk. They think. They draw insights from knowledge graphs. They forge emotional relationships with customers.”

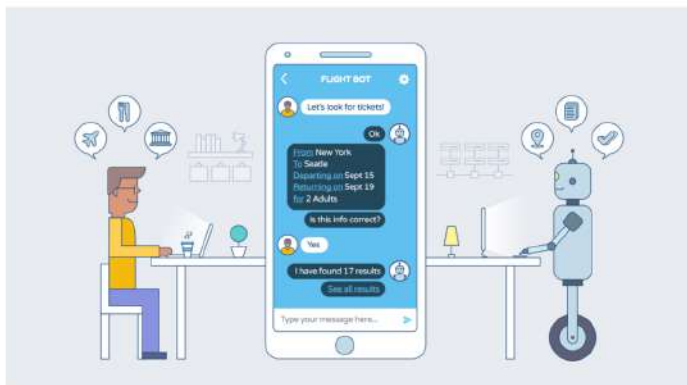
**Christie Olsen, Head of Evangelism for Bing at Microsoft**

## **2. Reward Stream:**



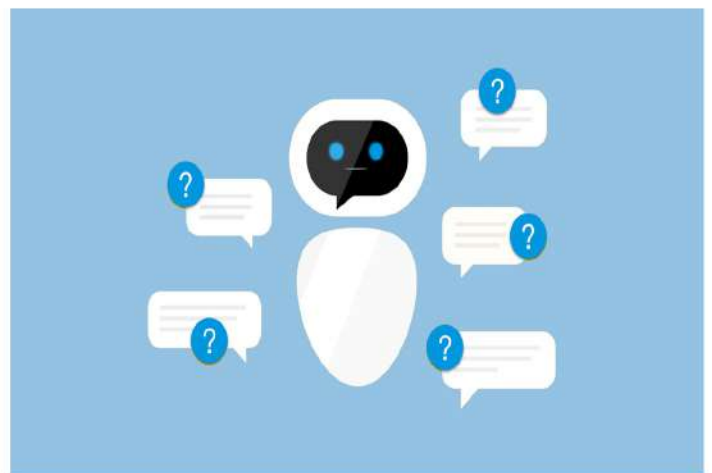
*Reward Stream also took the Leadbot approach and it accounted for 30% of their converted leads in the first 45 days. Yikes. Now Reward Stream builds platforms that help companies encourage their existing customers to refer friends – mostly for enterprise businesses.*

*The software company was doing everything right on the digital marketing front: generating traffic, engaging content, effective paid advertising and a solid email marketing strategy. Great stuff. Except there was a problem: Reward Stream wasn’t converting enough of those leads into customers.*



*In fairness, this bot doesn’t really fit into the B2B or B2C buckets, but it’s a perfect example of a simple bot that captures attention. My emphasis aims to make working out easier and more accessible to everyone by taking users through each step with instructions and custom illustrations. It’s a simple enough idea but the conversation design and visual content really turns this basic concept into something truly engaging.*

*As bots evolve, their ability to execute task automation on intent recognition will increase — moving closer to a human communication style for a more natural experience. Bots that can offer a more human-like service will be able to provide an even more engaging experience for consumers.*



**By -  
Syed Adil Fyjaan  
1602-18-735-082**



Vigna

**By -  
V Vigna  
1602-18-735-305**

# RFID TECHNOLOGY



Have you ever wondered that in large scale industries how does automation in low and medium critical jobs without much human interface it is achieved through RFID technology especially for routine jobs?



RFID is an acronym for 'Radio-frequency Identification,' which is used to identify objects, animals, etc. It can identify an object which is provided with an RFID tag, where the identity information of that object is encoded as digital data in it. It uses electromagnetic fields and radio waves to identify. To get a better view we can introduce this RFID technology as the replacement of our Barcode technology (But it is still of immense importance as it is cheaper and reliable). The crucial difference is that this barcode works when its reader is in line of sight with it whereas this RFID can detect objects even in a non-linear fashion and this is how it can detect more than one object at a time within its range (1500 feet or more) which is not possible in case of barcodes.

If we get into details in this system, we can physically see an RFID reader and an RFID tag where this RFID reader continuously sends radio waves and the RFID tag within the range sends its feedback signal as a response. This feedback signal consists of encoded information of that object. (For e.g.: This is used to identify books in the library, it can be used in supermarkets or it can be used to even track your car. It is also used to identify living things.). As you know this RFID system consists of RFID reader and RFID tags. These tags can be in any form (in general we have bands, in the form key chains and like cards), and are of three types: 1: Active tags, Passive tags, Semi-passive tags.



They differ in their power supply. Active devices are provided with an external power supply, so they use that energy to send back their response signals and so their range is high, whereas passive tags use the energy of radio waves sent by the reader to generate the feedback signal. Whereas semi-passive tags have an external source (as backup) but still primarily use energy from radio waves. Passive tags are now in use. But this has a small limitation since this RFID system



can get multiple object's information at a time, this radio wave strength may not be sufficient with passive tags and these signals (radio waves) do not work efficiently when they interfere with metals and liquids since their range is high there is high probability of deviation. Coming back if we look into details this RFID tags consists of three main components:

1: transponder (which is used to receive radio waves and send feedback digital signal).

2: rectifier circuit (which is used to take a part of the energy from the received radio signals to activate controller and memory)

3: controller and memory (this has encoded information which is unique for all tags.)

As for RFID readers (RFID readers can handheld readers or can be as large as the size of a door) they mainly consist of

1: RF signal generator (to generate and send RF signal)

2: detector (to receive the feedback signals)

3: microcontroller (the reader is usually attached to a computer).

**Working principle:**

This working principle is different based on the frequency of operation. We have three ranges of frequencies

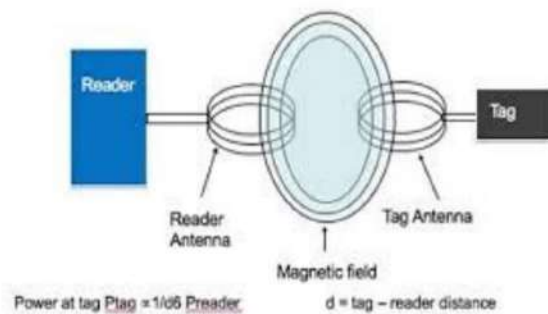
1: low frequency: 125KHZ-134KHZ (range is of 10 cm)

2: high frequency: 13056MHZ (range is of 1m)

3: ultra-high frequency: 860-960MHZ (ranges from 10 to 15 m)

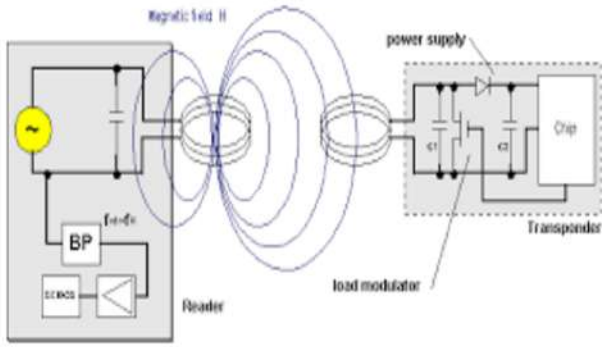
This range of frequencies is different from different countries. If we look into the working principle, for low range frequencies it uses inductive coupling phenomena (near coupling) and for ultra-high frequency, it involves electromagnetic coupling (for coupling).

Irrespective of frequency any reader signals must accomplish three main tasks, it should be able to induce enough power into tags, to perform synchronization of the clock (to coordinate) and must also act as a carrier for the return signal. Therefore, the strength of the reader signal must be high. As for near coupling, since the distance between tag and reader is less the field generated near the reader is induced into the antenna of the tag, this induced field makes the tag to operate in the same voltage. A part of the received signal is used up by controller and memory and the load connected is used to change the voltage which is in turn used to transfer feedback signal in the form of voltage. This can be possible by changing impedances of load and this is called load modulation.



As far as far-coupling is concerned the feedback signal is called a back-scattered signal. Here the impedance of the load is changed to match impedances to generate this back scattered signal and its intensity would be high based on impedance matching and this intensity, in turn, depends on reader signal strength. Therefore, for UHF's, we require high signal strength producing system.

This RFID technology almost serves all purposes in tracking and identifying things but still has limitations like we already discussed, it deviates its property on colliding with metals and liquids. Practical problems like colliding with tags can give incorrect information. There is a high possibility for an unauthorized reader to modify and corrupt the information, as its range is high and has the capability of reading more than one object at a time its efficiency decreases (can provide inaccurate information and is not reliable).



Some real-life scenarios where RFID technology is used are:

- 1: Payment in means of transport  
(To eliminate the delays on road tolls, Electronic Tolls Collection (ETC) collects tolls electronically.)
- 2: Asset management  
(location, identification, etc.)
- 3: Logistics  
(Tagging goods and pallets, you can instantly know what goods you have, how many they are E.g.: in a warehouse)
- 4: Medical applications  
(RFID technology in hospitals are present in many forms, from tracking surgical tools to tracking persons -patients, visitors, and staff.)
- 5: Timing of sports events  
(In many sports events like races the participants must be timed accurately, the best way to do this is tagging them and tracking when they pass across control points)

In the future, they may available even in places like libraries, museums, supermarkets, etc.



By -  
Ch. Lasya  
1602-18-735-076



# Hygienic Mistakes

We are living in an extremely busy digital world, where we don't even have enough time to look at our own hygiene. By using this habit of ours, many corporate companies are introducing, marketing, and selling various hygiene related products in an indecisive manner. Many of us are not even paying any attention to know about what the products contain, and how harmful they are?

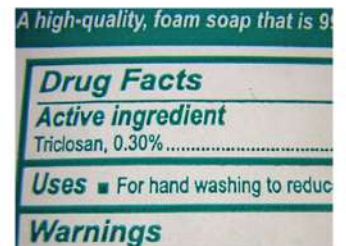
These products mentioned above are also not ayurvedic, have preservatives, have artificial colors and flavors.

Himalaya sparkling, Dabur red, Babool, Dabur, Meswak and Ayush rock tooth paste these all toothpastes are not highly harmful but can be used. Because these products do not contain fluoride but do contain some harmful chemicals.

**Do You Know what harmful chemicals our daily products are made up of?**



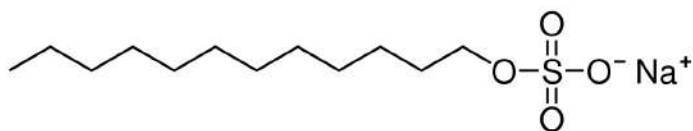
In Meswak, *triclosan* is present which is already banned in soaps and remaining toothpastes contains small quantity of SLS, artificial color and preservatives.



Coming to best. **Vicco Vajradanti, Biotique, Bentodent and Biomed Propoline** are the best. These products do not contain fluorides, sulphates, preservatives, flavors, and colors.

## Toothpaste:

Let us consider the high commercial toothpastes like *Colgate, Pepsodent, Close up, Dant kanti* and *Sensodyne* which are most popular in India. Mouth ulcers are caused due to *sodium lauryl sulphate* which is present in these so-called popular pastes.



SLS is known as skin irritant, and it also irritates the eyes, making skin oiler and skin penetrating. Coming to the usage of fluoride, it helps in tooth decay but should not be taken in large quantity. Ingesting 2.8 grams of fluoride can kill an adult of 50kgs. It can digest in mouth quickly but in long run it is dangerous.

**Check the ingredient list before buying on the toothpaste.**



## SOAP:

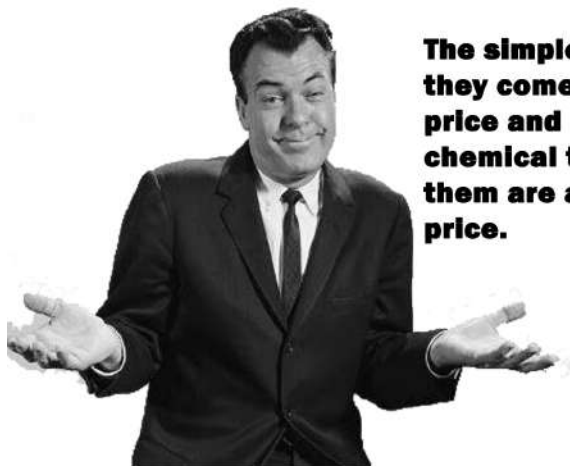
Most of the soaps available in the market are made up of toxic chemicals of which a commoner is unaware of. From strong detergent chemicals to harmful alcohols to petroleum products to pesticides, soaps have it all. Soap is something that we use daily and when we use a soap which has many harmful chemicals over a period, they seep into our blood stream through the pores on our body and damage from within.



The worst part is we don't know anything about this and unintentionally harming ourselves daily. Most of our soaps we use have many harmful and toxic chemicals (**Propene Glycol, PEG-n, Tetrasodium EDTA, BHT, Methylchloroisothiazolinone, Amodimethicone, Trideth-10, Tetra butylammonium Bromide**) cosmetic colors and fragrances may contain more than 200 chemicals, which the companies do not disclose under the umbrella of their trade secrets.

### FIRSTLY, WHY SUCH HARMFUL CHEMICALS ARE USED?

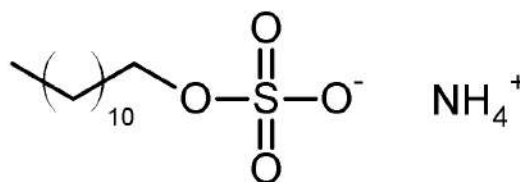
**The simple answer is they come at cheap price and non-toxic chemical to replace them are at high price.**



## Shampoo:



Coming to the shampoos, its story is a scary one. There are many toxic chemicals in shampoos which are linked to hair fall, irritation and even cancer. Shampoo is something which is mostly used on a regular basis. And if you are unknowingly using a shampoo which is toxic, it is doing more harm to your hair rather than doing good. Using such shampoos will gradually weaken your hair and will lead to issues like **dandruff, hair fall** and other dermatological diseases.



Most of the shampoos used by the Indians have the maximum number of toxic chemicals which is shocking to know. And different varieties of same brand are also having the same ingredients containing the harmful chemicals such as (**Ammonium lauryl Sulphate, Acrylates Copolymer, Dimethicone, Amodimethicone, BHT** etc.).



At last, these shampoos of the superior brands which we are using since our childhood are the main reason for our hair fall and other problems, and it is better to use these at an automobile servicing center to wash the vehicles rather than to wash our hair.

**Water:**



Water is essential for life. In these modern times, due to the misuse of water bodies and environmental degradation, water has been polluted, and thus installing water purifiers became a necessity and not a luxury. This created an opportunity for companies, which are using their cheap marketing tactics to rip off the pockets of an

average person, out of their fear and innocence. The basic technologies used for water purifying are Reverse osmosis (RO), Nano filtration (NF), Ultra filtration (UF) which are used according to their water and the TDS value of their using water.



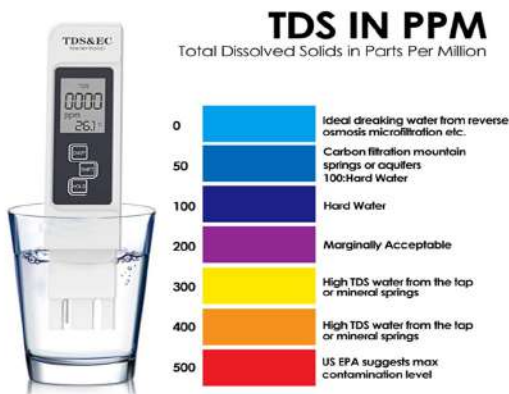
Finally, I want to say that everything is secondary when it is coming to our health. So be careful while using these products, be aware about the problems created by them and not only the above-mentioned products, but there are toxic substances in everything we buy outside, from using shampoo to eating food, from ham burgers to fruits. So be careful, these problems are arising due to our shift towards western modernization. We can surely shift towards it based on our interests, but is it worth it to compromising our hygiene and health for it? That is a question you should think about.

But these companies produce same type of purifiers up to 10-14 varieties just in order display their abilities with just minor cosmetic changes which are completely unnecessary. TDS is the basic measure for the purity of the water, where the TDS range from 100-300 is better and less than 100 and greater than 500 are non-ideal. But as more people are getting aware of these TDS range the companies are manipulating the TDS value by fixing a TDS controller in their filters.

**Random Fact:**

A chicken ham burger which was forgot in the car backspace is similar till the time of purchasing from 14 years.

Means, understand how many preservatives are being used in order increase the weight of their pockets.



But most of the water companies which produces packaged drinking water has their TDS range below 100, which is sad to know, and their range is 15-20, they do not care about minerals in water, just give you pure water with no minerals (or) waterless water.

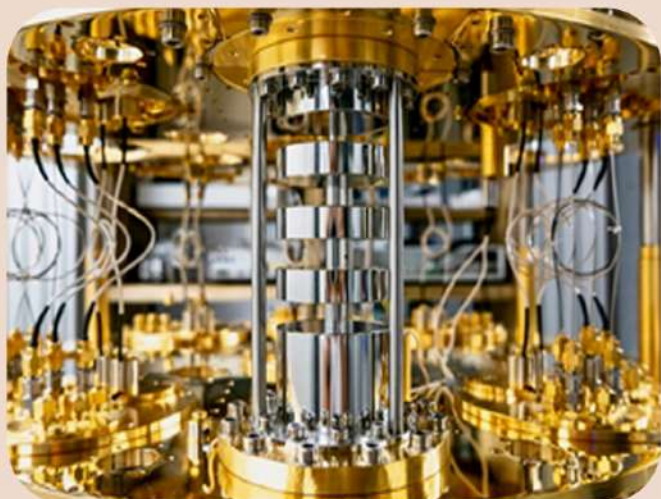
**By -**  
**C. Sai Kishore Reddy**  
**1602-18-735-095**

# QUANTUM COMPUTERS

## HOW FAR WE HAVE COME

Quantum computing is one of the greatest advancements in the field of computing. Being aspiring engineers it is necessary for us to know the latest advancements in technology. Quantum computers are extremely powerful in comparison with classical computers and even supercomputer work on the principle of quantum mechanics.

How are they different from classical computers?

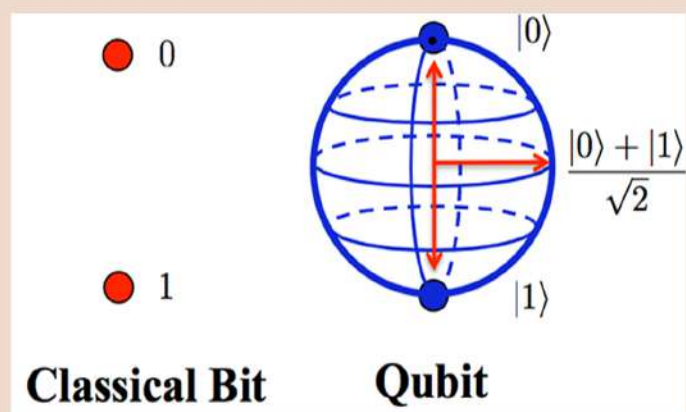


We know that classical computers manipulate ones and zeroes to perform various operations, but quantum computers use quantum bits or qubits. Just like classical computers, quantum computers use ones and zeros, but qubits have a third state called "superposition" that allows them to represent a one or a zero at the same time this gives us many more possibilities and help us to perform operations with high accuracy and speed.

What are qubits and how are they helpful?

In quantum computing, a qubit or quantum bit is the basic unit of to store quantum information in classical computers

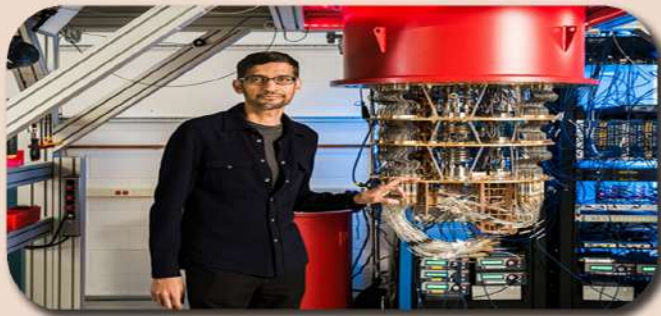
smallest information that can be stored is 1 or 0 but qubit can store even both at a time. The main advantage of these qubits is that they can be entangled. Then what is entanglement? In quantum mechanics entanglement is defined as the process of connecting two objects in such a way that if we know the information about one object, we can know information of the other object. Even increase in one qubit can lead to an enormous increase in efficiency



For example, if we assume that two coins are entangled then if we toss them and if we know that that one of the coins is showing heads then we can say that the other coin is showing tails. This makes it possible to us to know the complete information even if we get data partially.

Latest advancements in quantum computing  
1) Google's super-fast Sycamore quantum processor

The Tech giant Google is leading the race of quantum computers by their Sycamore quantum processor. It was able to perform a specific task in 200 seconds (about 3 and a half minutes) that would take the world's best supercomputer 10,000 years to complete even though it is having only 53 qubits.



Google said that their research will continue until they produce fully functional quantum computer with over 1 million qubits.

## 2) IBM's quantum computers



IBM Quantum is an IBM's first initiative to build universal quantum computers for business, engineering, and science. This effort includes advancing the entire quantum computing technology stack and exploring applications to make quantum broadly usable and accessible. There are three processors on the IBM Quantum Experience: two 5-qubit processors and a 16-qubit processor.

## 3) Intel Introduced Horse Ridge

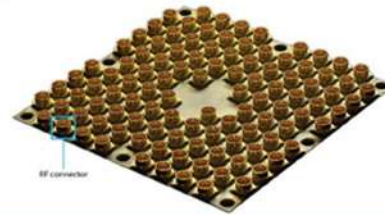
Intel introduced Horse Ridge quantum processor with 49 qubits. It is the second generation of its cryogenic control chip, considered a milestone towards developing scalable quantum computers. Based on its predecessor, it supports a higher level of integration for the quantum system's control. It can read qubit states and control several gates simultaneously to entangle multiple qubits. One of its key features is the ability to read the current qubit state.

With this feature, Horse Ridge allows for faster on-chip, low latency qubit state detection. Its multi gate control helps in controlling the potential of qubit gates. This ability allows for the scalability of quantum computers.

## INTEL'S 49-QUBIT PROCESSOR

During his keynote at CES 2018 in January, Intel CEO Brian Krzanich unveiled our 49-qubit superconducting quantum test chip, code-named "Tangle Lake." The 3-inch by 3-inch chip and its package is now in the hands of Intel's quantum research partner QuTech in the Netherlands for testing at low temperatures. Quantum computing is heralded for its potential to tackle problems that today's conventional computers can't handle. Scientists and industries are looking to quantum computing to speed advancements in areas like chemistry or drug development, financial modeling, and even climate forecasting.

TOP



WORTH ITS WEIGHT IN GOLD

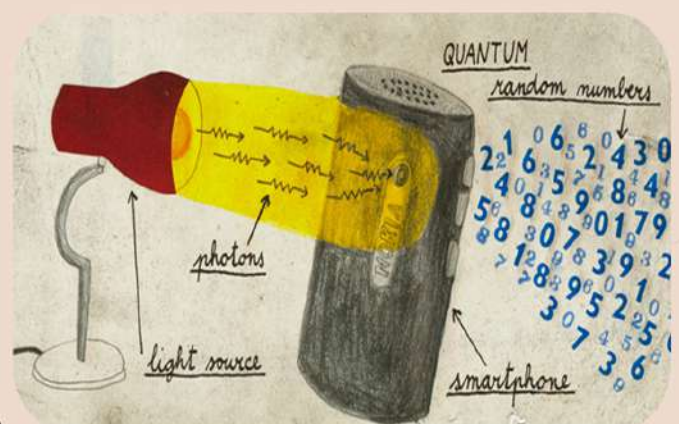
There are 108 radio frequency (RF) connectors on Tangle Lake that carry microwave signals into the chip to operate the quantum bits (qubits). They are made of gold, which is excellent for anti-corrosion and signal transmission.

## Advantages of quantum computers over classical computers:

Multiplying two large numbers is easy for any computer. But calculating the factors of an exceptionally large (say, 500-digit) number is considered impossible for any classical computer. In 1994, a mathematician from the Massachusetts Institute of Technology (MIT) Peter Shor, unveiled that if a fully working quantum computer was available, it could factor large numbers easily which could take classical computers millions of years. This helps us to take encryption levels to a next level.

## Quantum random number generation is fundamental to cryptography:

Conventional random number generators typically rely on algorithms known as pseudo-random number generators, which are not truly random and thus potentially open to compromise. Companies such as Quantum Dice and IDQuantique are developing quantum random number generators that utilize quantum optics to generate sources of true randomness. These products are already seeing commercial deployment.



Quantum computers are extremely fast at analyzing data as they can analyze more data at a time and this helps us to predict weather and helps us to bring solutions to the real-world problems. With this high computational speed, we can be able to use machine learning and artificial intelligence to the extreme limit and we can be able to build completely autonomous vehicles, satellites, orbiters, and we can use quantum computers in space research and come up with many new discoveries.

### Challenges to develop quantum computers:

- ✦ Decoherence (state instability)
- ✦ Scaling (few number of qubits)
- ✦ Input-output control
- ✦ Extreme conditions ( $T=10$  mK, ...)
- ✦ New math algorithms development
- ✦ Consumer friendly implementation
- ✦ Weak measurement

The power of quantum computing comes from the ability to store a complex state in a single bit. This also what makes quantum systems difficult to build, verify, and design. Quantum states are fragile, so fabrication must be precise, and bits must often operate at extremely low temperatures as  $-272^{\circ}\text{C}$  or  $1^{\circ}\text{Kelvin}$  which is possible to achieve but can last only for few milli seconds.

The other main problem is that it is extremely hard to design and analyze algorithms for the function of quantum computers since there are way more possibilities and it is very new for us to work on it. Even then, many of the scientists succeeded in developing algorithms that are highly efficient.

**Conclusion:** The field of quantum computing is growing rapidly as many of today's leading computing groups, universities, colleges, and all the leading IT vendors are researching the topic. This pace is expected to increase as more research is turned into practical applications. The current challenge is not to build a full quantum computer right away but to be able to control the quantum phenomenon to do various productive operations; No one can predict when we will build the first quantum computer; it could be this year, perhaps in the next 10 years, or centuries from now. Obviously, this mind-boggling level of computing power has enormous commercial, industrial, and scientific applications, but there are some significant technological and conceptual issue to resolve first.

### Disadvantages of quantum computers:

There are no direct disadvantages of quantum computers. As we know it all depends on how we use it. Quantum computers are pretty much powerful so they can be used to steal any type of data by decrypting any type of encryption and can be used to intrude our privacy. If they fall in wrong hands it will be a disaster.

### Effect of quantum computers on cyber security:

Cyber security is the practice of defending computers, servers, mobile devices, electronic systems, networks, and data from malicious attacks. Usually, data is protected by encrypting it. One of such powerful encryptions is RSA encryption this encryption is based on the fact that the classical computers are very slow at finding factors of big numbers and if the factors are huge prime numbers then it will take thousands of years to find them but quantum computers are able to find factors in seconds. In particular, a quantum technique called Shor's algorithm can factor large numbers exponentially faster than classical machines.

The other threat is the due to the ability of quantum computers to analyze and process data at unbelievable speeds. This helps the hackers to Brute force any type of passwords. Bruteforcing is trying all the possible combinations to crack the password but classical computers are very slow at it. But if quantum computers are accessible to everyone then any type of encryption or password can be cracked and this can lead to a technological catastrophe.

By -  
Thota Santhosh Dheeraj  
1602-20-735-158





## FOR YOUTH AND THE ROLE OF GOVERNMENT IN IT

An increasing number of new generation start-ups in the technology/knowledge-intensive industries have created something of a "euphoria" in major cities of India. This article discusses the salient features of the start-up ecosystem that has emerged in our country, its adequacy for start-up promotion, and the measures needed to strengthen this. The start-up growth in India, and its employment contribution, relative to the organized sector are of utmost importance. We should know the emphasis on the need for a steady increase in new generation start-ups as a means of productive employment generation, economic transformation and growth.



Government of India has made fast paced efforts towards making the vision of start-ups India initiative a reality. Substantial progress has been made under the start-ups India initiative, which has stirred entrepreneurial spirit across the country. In India the Government has done a tremendous amount of work for the benefits of thousands of young entrepreneurs. One such was the STARTUP INDIA HUB.

The Objective was to create a single point of contact for the entire Startup ecosystem and enable knowledge exchange and access to funding. Young Indians today have the conviction to venture out on their own and a conducive ecosystem lets them watch their ideas come to life. In today's environment we have more Startups and entrepreneurs than ever before and the movement is at the cusp of a revolution. However, many Startups do not reach their full potential due to limited guidance and access.

The Government of India has taken various measures to improve the ease of doing business and is also building an exciting and enabling environment for these Startups, with the launch of the "Startup India" movement.

The "Startup India Hub" is a key stakeholder in this vibrant ecosystem and will:

-> Work in a hub and spoke model and collaborate with Central & State governments, Indian and foreign VCs, angel networks, banks, incubators, legal partners, consultants, universities and R&D institutions

-> Assist Startups through their lifecycle with specific focus on important aspects like obtaining financing, feasibility testing, business structuring advisory, enhancement of marketing skills, technology commercialization and management evaluation

-> Organize mentorship programs in collaboration with government organizations, incubation centers, educational institutions and private organizations who aspire to foster innovation. To all young Indians who have the courage to enter an environment of risk, the Startup India Hub will be their friend, mentor and guide to hold their hand and walk with them through this journey.



Progress:

A dedicated Startup Hub team was setup under Invest India. Team members have been assigned to different states for assisting them in formulating and implementing policies to facilitate growth of startups. A total of 1,76,654 queries have been addressed through the Startup India portal and Startup India Twitter seva till 24th March 2020.

Conclusion:

This initiative is a necessity to lead India in the right direction. As a country with the highest population of youth in the world, the scheme is made to keep the youth determined. As start-up entrepreneurs have fresh minds, innovative ideas, required strength, energy, skills, and new thoughts to lead business. This scheme has given a great incentive to the youth of the country who are actively registering themselves.

By-  
Huzaifa  
1602-20-735-019

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