Government Polytechnic Jalgaon

Academic Year 2020-21

Course Code

Mobile and wireless communication

(22533)

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MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION

GOVERNMENT POLYTECHNIC, JALGAON
(0018/1567)

Program Name and Code : ELECTRONICS &TELICOMMUNICATION

Course Name And Code : Mobile and wireless communication (22533)

Academic Year : 2020-21

Semester : Fifth.

A MICRO PROJECT

On

Survey Of Various Communication Wireless Phone Available In Market .

Submitted on _____2020 by the group of 4 students.

Sr. No.	Roll No.	Name of student	Enrollment No.	Seat No.
1	11	Prathamesh saraf	1800180265	
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MAHARASHTRA STATE BOARD OF TECHNICAL EDUCATION

Certificate

This is to certify that Master Mr/Ms. **Prathamesh , mohit , Mohish , Mandar** Roll No.**11, 23, 24, 25** Of **5th** Semester of Diploma in **E&TC.** Of Institute, **Government Polytechnic, Jalgaon (Code:0018/1567)** has completed the **Micro Project** satisfactorily in the Subject Mobile And Wireless Communication (22533) for the Academic Year 2020- 2021 as prescribed in the curriculum.

Place**: Jalgaon** Enrollment No:-

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Date:-

Exam. Seat No:-

Subject Teacher Head of the Department Principal

Seal of Institution

TITLE

Survey Of Various Communication Wireless Phone Available In Market .

Submitted by-:

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2. Mohit Bhangale (23)
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under the guidance of:

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1. RATIONALE

In this world of connectivity and collaborative work environment, it is necessary to connect to the network from anywhere, with anybody, at anytime. Wireless communication provides connectivity with mobility, flexibility and convenience. Wireless devices are used across the various industries like Healthcare, Education, Automation, Renewable energy sector, Automobile etc. Effective use of Social networking has become possible due to high end wireless devices. This course will help the students to develop skills to handle wireless and mobile communication systems.

2 . COURSE OUTCOMES (COs)

- Troubleshoot mobile handsets.
- Assess cellular systems capacity.
- Assess performance of standards of different cellular mobile systems.
- Select relevant wireless technology suitable for various applications.
- Test the performance of various wireless protocols.

Wireless communication-:

There are many devices used for wireless communication like mobiles. Cordless telephones, Zigbee wirelss technology, GPS, Wi-Fi, satellite television and wireless computer parts. Current wireless phones include 3 and 4G networks, Bluetooth and Wi-Fi technologies.

Mobile phone

A mobile phone, cellular phone, cell phone, cellphone, handphone, or hand phone, sometimes shortened to simply mobile, cell or just phone, is a portable telephone that can make and receive calls over a radio frequency link while the user is moving within a telephone service area. The radio frequency link establishes a connection to the switching systems of a mobile phone operator, which provides access to the public switched telephone network (PSTN). Modern mobile telephone services use a cellular network architecture and, therefore, mobile telephones are called *cellular telephones* or *cell phones* in North America. In addition to telephony, digital mobile phones (2G) support a variety of other services, such as text messaging, MMS, email, Internet access, short-range wireless communications (infrared, Bluetooth), business applications, video games and digital photography. Mobile phones offering only those capabilities are known as feature phones; mobile phones which offer greatly advanced computing capabilities are referred to as smartphones.

The development of metal-oxide-semiconductor (MOS) large-scale integration (LSI) technology, information theory and cellular networking led to the development of affordable mobile communications.

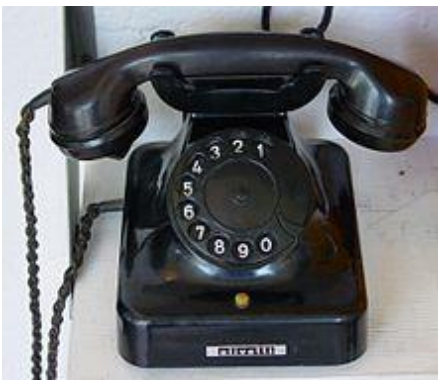
Types of wireless communication phones

1. Smartphone
2. Feature Phone
3. Satellite Phone
4. Landline Telephone
5. Landline Phone
6. Hotline
7. Cordless Telephone

1 LANDLINE TELEPHONE

Description

A telephone is a telecommunications device that permits two or more users to conduct a conversation when they are too far apart to be heard directly. A telephone converts sound, typically and most efficiently the human voice, into electronic signals that are transmitted via cables and other communication channels to another telephone which reproduces the sound to the receiving user. The term is derived from Greek: τῆλε (*tēle*, *far*) and φωνή (*phōnē*, *voice*), together meaning *distant voice*. A common short form of the term is phone, which came into use almost immediately after the first patent was issued.



History

Before the development of the electric telephone, the term "telephone" was applied to other inventions, and not all early researchers of the electrical device called it "telephone". Perhaps the earliest use of the word for a communications system was the *telephon* created by Gottfried Huth in 1796. Huth proposed an alternative to the optical telegraph of Claude Chappe in which the operators in the signalling towers would shout to each other by means of what he called "speaking tubes", but would now be called giant megaphones. A communication device for sailing vessels called a "telephone" was invented by the captain John Taylor in 1844. This instrument used four air horns to communicate with vessels in foggy weather.

In 1876, shortly after Bell's patent application, Hungarian engineer Tivadar Puskás proposed the telephone switch, which allowed for the formation of telephone exchanges, and eventually networks.

In the United Kingdom *the blower* is used as a slang term for a telephone. The term came from navy slang for a speaking tube. In the U.S., a somewhat dated slang term refers to the telephone as "the horn," as in "I couldn't get him on the horn," or "I'll be off the horn in a moment."

Digital telephones and voice over IP

he invention of the transistor in 1947 dramatically changed the technology used in telephone systems and in the long-distance transmission networks, over the next several decades. Along with the development of stored program control for electronic switching systems, and new transmission technologies, such as pulse-code modulation (PCM), telephony gradually evolved towards digital telephony, which improved the capacity, quality, and cost of the network.

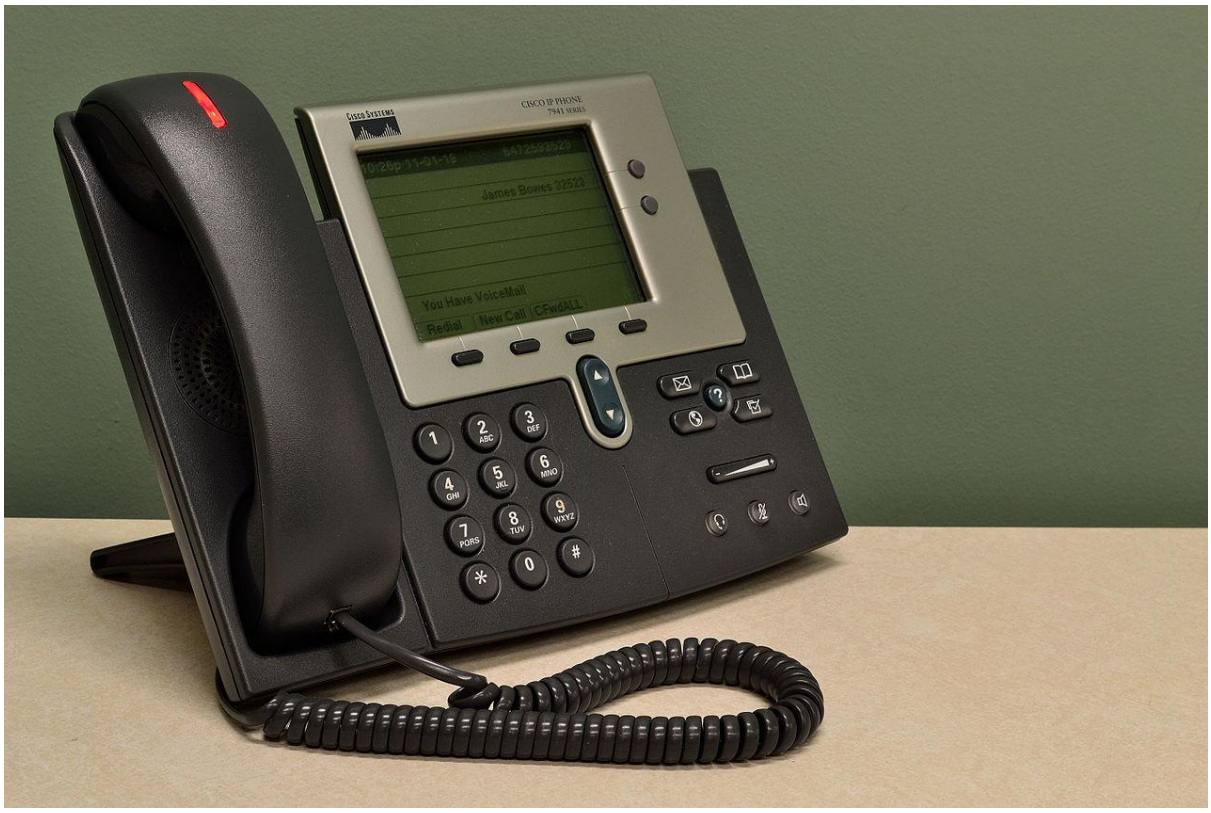
The development of digital data communications methods made it possible to digitize voice and transmit it as real-time data across computer networks and the Internet, giving rise to the field of Internet Protocol (IP) telephony, also known as voice over Internet Protocol (VoIP), a

term that reflects the methodology memorably. VoIP has proven to be a disruptive technology that is rapidly replacing traditional telephone network infrastructure.

By January 2005, up to 10% of telephone subscribers in Japan and South Korea had switched to this digital telephone service. A January 2005 Newsweek article suggested that Internet telephony may be "the next big thing." The technology has spawned a new industry comprising many VoIP companies that offer services to consumers and businesses.

IP telephony uses high-bandwidth Internet connections and specialized customer premises equipment to transmit telephone calls via the Internet, or any modern private data network. The customer equipment may be an analog telephone adapter (ATA) which translates the signals of a conventional analog telephone to packet-switched IP messages. IP Phones have these function combined in standalone device, and computer softphone applications use microphone and headset devices of a personal computer.

While traditional analog telephones are typically powered from the central office through the telephone line, digital telephones require a local power supply. Internet-based digital service also requires special provisions to provide the service location to the emergency services when an emergency telephone number is called.



Characteristic icons and symbols

The Unicode system provides various code points for graphic symbols used in designating telephone devices, services, or information, for print, signage, and other media.

- U+2121 ℡ TELEPHONE SIGN
- U+260E ☎ BLACK TELEPHONE
- U+260F ☏ WHITE TELEPHONE

- U+2706 ✆ TELEPHONE LOCATION SIGN
- U+2315 ⌕ TELEPHONE RECORDER
- U+01F4DE 📞 TELEPHONE RECEIVER
- U+01F4F1 📱 MOBILE PHONE (HTML 📱)
- U+01F4F4 📴 MOBILE PHONE OFF (HTML 📴)
- U+01F4F5 📵 NO MOBILE PHONES (HTML 📵)
- U+01F57B 🕻 LEFT HAND TELEPHONE RECEIVER
- U+01F57C 🕼 TELEPHONE RECEIVER WITH PAGE
- U+01F57D 🕽 RIGHT HAND TELEPHONE RECEIVER
- U+01F57E ☏ WHITE TOUCHTONE TELEPHONE (HTML 🕾)
- U+01F57F ☎ BLACK TOUCHTONE TELEPHONE (HTML 🕿)
- U+01F581 🖁 CLAMSHELL MOBILE PHONE (HTML 🖁)

FREE FEATURES telephones

- Caller ID
- Call Waiting
- Cancel Call Waiting
- Call Return
- Call Forwarding
- Call Forward Busy
- Call Forward No Answer
- Selective Call Forwarding
- Per Call Block
- All Call Block
- Selective Call Acceptance
- Selective Call Rejection
- Anonymous Call Rejection
- Speed Calling
- Last Number Redial
- Selective Ring
- Conference Calling

Advantages of Telephone

The telephone is the most profit factor for individuals. Everyone seems to be taking this real advantage in their life. It's the best mode for connecting with distant individuals. There are some advantage of the telephone is given below

1. Connection of people It is a nice technique of communication, by this facility individuals will hook up with their loved ones and relatives. We can get additional of solutions from our relatives by the phone system if we are in any issues. It's terribly useful for the individuals to attach their beloved.

2. Connection to the web With the advanced functions of the trendy telephone system, like the VoIP, we will affordably contact individuals even in remote areas as long as connected to the net.

3.Facilitate numerous functions
There are various sorts of services within the smartphone, that is call forwarding, decision screening and lots of others that place ease in our means of human activity.

4.Wireless Communication
In the trendy time, most of the individuals have the power of a smartphone, and it's the terribly audio system of the phone that it helps within the transmission of voice using wireless technologies. It's the necessary invention of mobile phones.

5. Saves Time and Energy
The new sort of smartphones plays an important role in saves time and energy. It serves us as an honest servant altogether the fields as a result of it saves our valuable time and energy to a good extent.

6. Provides Security
In the major cities, there's the ability of safety. It's created for the individuals to facilitate, like if individuals have any drawback, then they will call the police for help. It protects and secures to the individuals.

7. Easy for Traveling
The smartphone plays a vital role conjointly within the time of traveling. By the smartphones, individuals will book the ticket of moving as an example of railway booking, vocation a taxi from the stand all are often done on the telephone.

Disadvantages of telephone

There is conjointly some drawback of telephone, that details given below:

1. Minimum Convenience of Telephone
In the neighborhood, a number of individuals had the phone communication system. Most of the individuals don't have that facility for the decision of their loved one. in order that they square measure victimization another phone for vocation, and it became the explanation to pay the bill by the owner of the phone.

2. Disconnection of Network System
Sometimes, the phone system is disconnected, once somebody is talking with people. It creates the incorrect image in the mind of individuals at that point. individuals try once more for connecting with the individuals, thus it conjointly becomes the cause of the wasting of your time.
It's conjointly a proven fact that factor, we cannot call if a recipient of the call is unavailable or engaged in speech somebody else.

3. The bitterness of Neighbors by Ringing of Phone
Some of the neighbors are thus frank and free that they offer your variety to their relatives and friends. If you fail to decide the friend at an odd hour once the phone rings for him, he can become angry, and the sweetness of the neighborhood would grow to be the bitterness. They fail to think about your comfort.

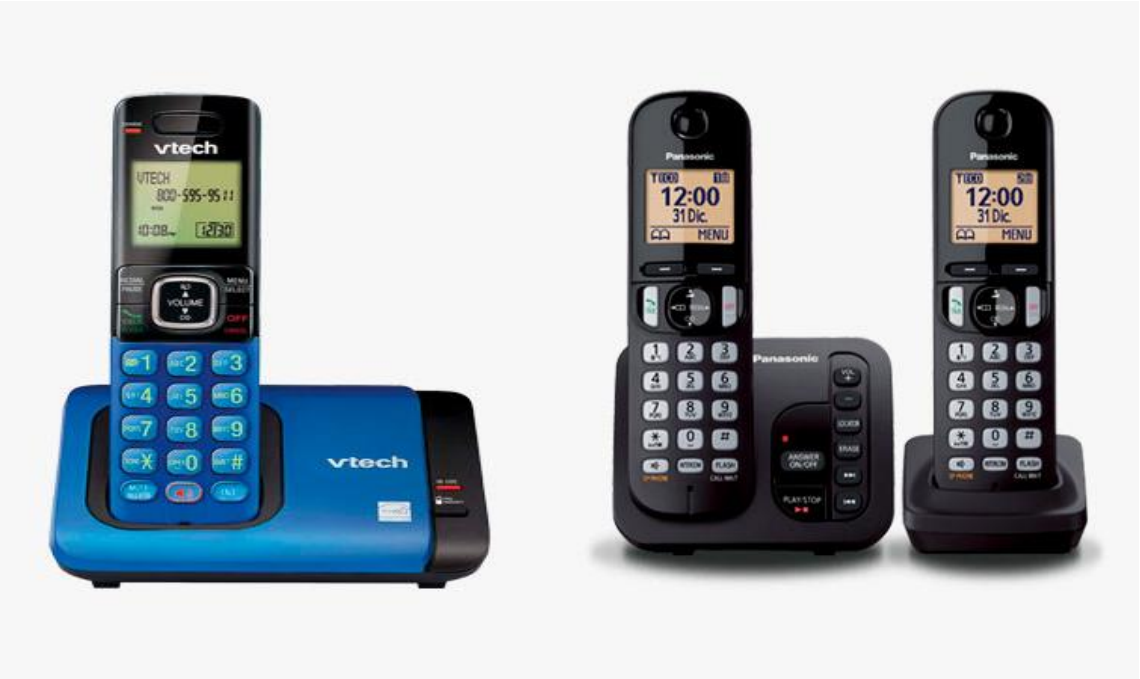
4. Disturbance in Calls
Sometimes the individuals call to the opposite person terribly forced to attend several calls and, that disturbed the peace of mind. Individuals waste a lot of time on the phone. It's the terribly habit for everyone; those are talking a lot of on the phone.

2 Cordless Phone

A **cordless telephone** or **portable telephone** is a telephone in which the handset is portable but able to be used like landline phone communication, only it operates by radio frequency transmission and not a physical insulated wire, or telephone line. The base station is connected to the telephone network through a telephone line as a corded telephone is, and also serves as a charger to charge the handset's batteries. The range is limited, usually to the same building or some short distance from the base station.

A cordless telephone differs from a mobile telephone by the limited range and by the base station on the subscriber premises. Current cordless telephone standards, such as PHS and DECT, have blurred the once clear-cut line between cordless and mobile telephones by implementing cell handoff (handover); various advanced features, such as data-transfer; and even, on a limited scale, international roaming. In specialized models, base stations are maintained by a commercial mobile network operator and users subscribe to the service.

In 1994, digital cordless phones in the 900 MHz frequency range were introduced. Digital signals allowed the phones to be more secure and decreased eavesdropping; it was relatively easy to eavesdrop on analog cordless phone conversations. In 1995, digital spread spectrum (DSS) was introduced for cordless phones. This technology enabled the digital voice transmission to be spread over multiple frequencies, improving privacy and reducing interference between different subscribers.



History

Radio telephony (telephony without wires) predated cordless phones by at least two decades. The first, MTS, or Mobile Telephone Service went into service in 1946. Because the range was intended to cover the widest possible service area, capacity was extremely low, and the early tube technology made equipment rather large and heavy. The second generation radio telephone, or IMTS, or Improved Mobile Telephone Service became active in 1964.

Beginning in 1963, a small team of Bell Laboratories engineers were tasked with developing a practical and fully functional duplex wireless telephone. The team included (in alphabetic order): S.M. Baer, G.C. Balzer, J.M. Brown, W.F. Clemency, M. Rosenthal, and W. Zinsmeister, under the direction of W.D. Goodale, Jr.

By 1964, breadboard models were working in the lab. During 1964-65 these were refined and packaged to test around the Bell Labs Holmdel N.J. facilities. The system operated under an experimental license on crystal controlled channels in the 35 and 43 MHz bands using FM, a low power transmitter and a sensitive *superhet* receiver. Full supervision of all telephone functions, including on-off hook and dialing was provided via an out of band tone supervision system. The model developed for home use was designed to look like a standard (although bulky) telephone handset. The base station was a small box connected to a standard telephone network. About 50 units were built in a Western Electric model shop in Andover Mass. for field trials in two Bell System locations in the Boston and Phoenix area. The overall project was described in the Bell Laboratories Record, Volume 45 (1967).

in 1977, Douglas G. Talley and L Duane Gregory were granted U.S. Patent 4,039,760 for a duplex voice communication link including controls provided between a base station connected directly to a telephone line of a telephone exchange and a mobile unit consisting of a small, compact cordless telephone instrument containing transmitter, receiver and control circuits powered by a rechargeable battery pack. A single logic tone is transmitted and detected for all logical control for ring signals, on-hook and off-hook signals and dial pulses.

Cordless phones brands

1. **Panasonic** KX-TG3821SXB 2.4 GHz DIGITAL Cordless Telephone.
2. **Panasonic** Single Line 2.4GHz KX-TG3611SX Cordless Telephone.
3. **Panasonic** Cordless Phone KX-TG3711SX.
4. **Beetel** X70 Cordless Landline Phone.
5. **Beetel** X-81 Cordless Phone.
6. **Gigaset** A450 Cordless Landline Phone.

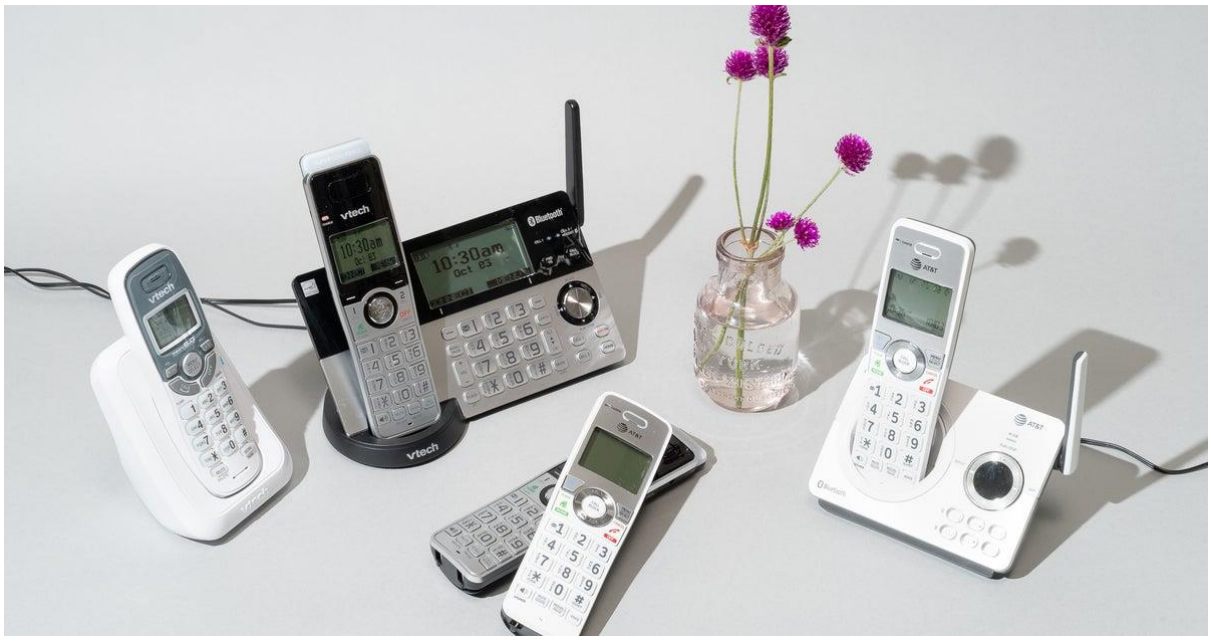
Features of cordless phone

features that are most important to you.Some of the most popular cordless phone features include:

- Speakerphone.
- Caller ID.
- Mailbox.
- LCD screen on handsets and/or bases to display your phone directory, caller ID, battery life, and other information.
- Headset jack. A headset jack with a belt clip allows you to chat while you move about the room or look through paperwork for a hands-free conversation.
- Two-line support. This feature allows you to receive calls for two phone numbers on the same phone. Some phones give two distinct ringers to let you know which line is

ringing. This feature is very handy if you're conferencing with two callers in a three-way conversation.

- Auto talk. This feature means your call connects as soon as you lift the handset from the base.
- Battery backup. This feature means your phone can keep working if you lose power.
- Multiple handsets. This option allows you to have an intercom mode or answer calls throughout the house.



Disadvantages

Expense: Cordless telephones aren't massively expensive by any stretch of the imagination, but the more sophisticated technology contained inside them means that they're inevitably more costly than their wired counterparts. For some people this could be the deal breaker, especially if they need more than one handset.

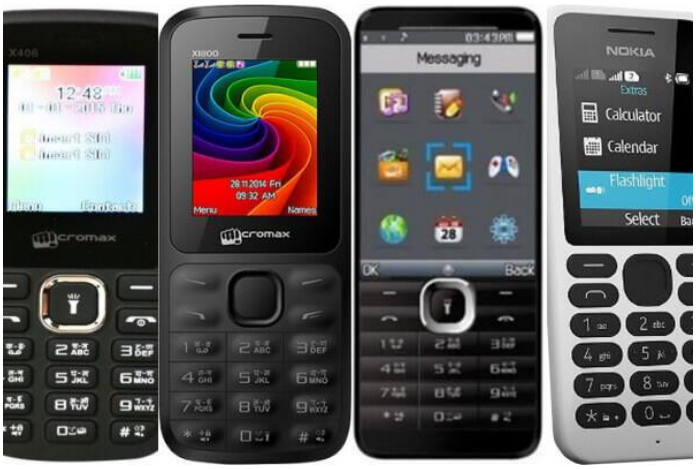
Less efficient: Generally cordless telephones aren't quite as energy efficient as wired telephones – you could probably guess that from the fact that you need to plug in a cordless telephone base into a power socket. You won't see a sharp rise in your electricity bills, but if you're a particularly green individual this could be something to deter you from going cordless.

Less reliable: This one depends on the frequency of your cordless telephone. Some cordless telephones are set at the same frequency as things such as car alarms and baby monitors, which can cause interference – the last thing you want when you're in the middle of an important telephone call. Some people also claim the sound quality just isn't as good.

3 Feature Phone

Description -:

A feature phone is a mobile phone that retains the form factor of earlier-generation phones, with button-based input and a small display. Feature phones are sometimes called dumbphones in contrast with touch-input smartphones. They tend to use an embedded operating system with a small and simple graphical user interface, unlike large and complex mobile operating systems like Android or iOS. Feature phones typically provide voice calling and text messaging functionality as well as basic multimedia and Internet capabilities and other services offered by the user's wireless service provider. Feature phones often contain hardware including a backlit LCD screen, a hardware notification LED, a micro USB port, a physical keyboard, a microphone, an SD card slot, a rear-facing camera to record video and capture pictures, and GPS. Some feature phones include a rudimentary app store that includes basic software such as mobile games, calendar and calculator programs.



History

Despite the introduction of smartphones in the mid-1990s, ignited with the August 1994 release of the IBM Simon, Nokia Communicator from **1996** on, and the BlackBerry line of handheld personal digital assistants from Research in Motion, feature phones enjoyed unchallenged popularity into the mid 2000s.

Feature Phone brands in India

1. Nokia 150	Overall Best Pick
2. Samsung Guru Music 2	Runner-Up Pick
3. Nokia 105	Best Ergonomic Design
4. Lava A3	Value for Money Feature Phone
5. Nokia 5310	Best Feature Phone for Music Lovers
6. Micromax X380	Best all Round Performer
7. Kechaoda K112	Best Triple SIM Phone
8. Nokia 3310	Honourable Mention

Feature Phone selection criteria

Although many people think that feature phones are a thing of the past, we find that these affordable and durable flip or slider phones are still in demand, especially among parents looking to get the first cell phone for their kids, or for seniors who prefer a low-cost, functional way to stay connected. However, a feature phone can also be just right for those frugal shoppers who don't need, or want, the abundance of features offered on a smartphone. Here are some of the main reasons why many Twigby customers consider and use feature phones:

No/Minimal internet connection-*:*At first glance, this may seem like a negative. But for others, this is exactly what they need. For instance, many Twigby customers are parents who love our affordable plan prices because it allows them to provide their child with their first cell phone and cell phone service. But, they prefer to keep the internet out of their hands. One way to achieve this is by purchasing them a low-cost, yet high quality flip phone.

Durable-*:*Without those sensitive and easily damaged glass screens, feature phones tend to last a lot longer than fragile smartphones. This is the perfect solution for those who are prone to dropping their phone and do not want the added costs of replacing.

Battery life-: Still to this day, one of the main gripes about most smartphones are their short-lasting batteries. Typically, feature phones have much longer battery life than smartphones. This is because they aren't busy running apps and browsing the internet all day, thus giving peace of mind in knowing that your phone likely has a good amount of battery and is available in emergency situations.

Inexpensive-*:*Last but certainly not least, feature phones are still loved by many today because of their affordability. In a new world dominated by smartphones, feature phones can be found for around $20. And, without the need for data, plans at Twigby start at just $9 a month, making them a great choice for those who are testing the waters with their children having a phone, seniors looking to save on their monthly budget, or any frugal conscious person who loves to save money.

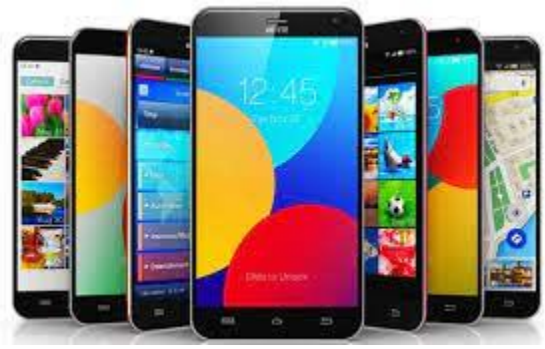
Advantages of feature phone

- You can live carefreely.
- You can use it to show anger – good old days.
- You can play with your regular phone.
- No more heartbreaks.
- You get more productive.
- More **battery life**.
- It makes you appreciate smartphones.
- You can save money.

4 Smartphone

Description

A **smartphone** is a mobile device that combines cellular and mobile computing functions into one unit. They are distinguished from feature phones by their stronger hardware capabilities and extensive mobile operating systems, which facilitate wider software, internet (including web browsing[1] over mobile broadband), and multimedia functionality (including music, video, cameras, and gaming), alongside core phone functions such as voice calls and text messaging. Smartphones typically contain a number of metal–oxide–semiconductor (MOS) integrated circuit (IC) chips, include various sensors that can be leveraged by their software (such as a magnetometer, proximity sensors, barometer, gyroscope, or accelerometer), and support wireless communications protocols (such as Bluetooth, Wi-Fi, or satellite navigation).



History

The development of the smartphone was enabled by several key technological advances. The exponential scaling and miniaturization of MOSFETs (MOS transistors) down to sub-micron levels during the 1990s–2000s (as predicted by Moore's law) made it possible to build portable smart devices such as smartphones,[4][5][6] as well as enabling the transition from analog to faster digital wireless mobile networks (leading to Edholm's law).[7][8][9] Other important enabling factors include the lithium-ion battery, an indispensable energy source enabling long battery life,[10] invented in the 1980s[11] and commercialized in 1991,[12] and the development of more mature software platforms that allowed mobile device ecosystems to develop independently of data providers.

Smartphone brands

- SAMSUNG
- APPLE
- HUAWEI
- NOKIA
- SONY
- LG
- HTC
- MOTOROLA
- LENOVO
- XIAOMI
- GOOGLE
- HONOR
- OPPO
- REALME
- ONEPLUS
- VIVO
- MEIZU
- BLACKBERRY
- ASUS
- ALCATEL
- ZTE
- MICROSOFT
- VODAFONE
- ENERGIZER
- CAT
- SHARP
- MICROMAX
- INFINIX
- ULEFONE
- TECNO
- BLU
- ACER
- WIKO

Features of smartphone

Any new smartphone has a gimmick. Whether it's wireless charging, fingerprint scanning or even eye-tracking, there's always an amazing feature you "can't live without." But let's be honest: many of those features you really can live without.On the other hand, some of the futuristic technology available in next-generation smartphones is really useful. But which features do you need in your toolbox and which are just the icing on the cake? This definitive list ranks 10 useful features your smartphone needs to have.

1. A long-lasting battery
Your smartphone could have a shrink-ray or turn lead into gold and it would still be useless without juice. There are ways to boost the battery life of your gadget, but at the end of the day a larger battery is going to last you longer. The Droid Maxx is the undisputed king of batteries. It will get you close to 48 hours of use. The Galaxy Note 3 has a respectable battery life at 12-16 hours of use, but it's still well behind the Maxx. The iPhone 5S is around 10 hours and the Samsung Galaxy S4 brings up the rear at 9 hours.

2. Warp-speed processing
Speed is still the ultimate prize in the smartphone arms race. You notice when apps lag or when swiping takes an eternity. The iPhone 5s is the fastest smartphone on the market. Its A7 chip is even light years ahead of blazing fast phones like the Samsung Galaxy S4 or the surprisingly quick Motorola Moto X. But don't despair if your phone feels a little sluggish — there are ways to speed it up.

3. Crystal-clear display
Smartphones are as much about enjoying media as they are about communicating. You watch movies, play games and view photos on your mobile screen and you want the crispest display around.

4. A great camera
You don't have to be a pro photographer to see the difference between modern phone cameras and the ones on your old flip-phone. A great camera is important for more than just great photos. You can use your camera for some surprising other things, like visual search. The iPhone 5s and the HTC One are also very respectable shooters. Their image sensors have larger pixels, which gives you better color range and excellent low-light images.

5. NFC
Near Field Communications allows your smartphone to transmit data to other phones and tablets in the vicinity. It's really handy for sharing pictures and music. You can even use it to pay at stores and restaurants. Plenty of great Android and Windows phones offer NFC, but not Apple.

6. Multiple windows
You'd never settle for seeing just one window on your computer, why would you on your phone? Samsung Galaxy phones, as well as LG's G2, Optimus and Enact are superb at letting you see multiple apps at once. Other Android phones and the iPhone stick to displaying a single app at a time.

7. Plenty of storage space
Most smartphones come with anywhere between 16 and 32 gigabytes of storage. Extra space is a nice luxury, but these days you'll be saving most of your media in the cloud.

8. Infrared remote control
How cool would it be to control your TV with your smartphone? You'll never search for the remote again. Phones like the HTC One and Samsung Galaxy S4 include Infrared transmitters as well as apps to help you control your TV. Of course, there are third-party infrared add-ons for the iPhone and other Android phones.

9. Fingerprint sensor
Apple's most gabbed-about feature on the new 5s was definitely the fingerprint sensor. It's not really any more secure than traditional lockscreen passcodes, but it does save you time. The HTC One Max Android phone also has one, but few other phones do at this time.

10. Wireless charging
This is a handy feature for those of you who don't want to plug in your phone. Just set it down and it's charging. And don't worry; wireless charging is perfectly safe.

Future of smartphones

The next generation of smartphones will be context-aware, taking advantage of the growing availability of embedded physical sensors and data exchange abilities. One of the main features applying to this is that phones will start keeping track of users' personal data, and adapt to anticipate the information will need. All-new applications will come out with the new phones, one of which is an X-ray device that reveals information about any location at which the phone is pointed. Companies are developing software to take advantage of more accurate location-sensing data. This has been described as making the phone a virtual mouse able to click the real world. An example would be pointing the phone's camera at a building while having the live feed open, and the phone will show text with the image of the building, and save its location for use in the future.

- **Borderless technology-:** Borderless phones are free from the shackles of the bezels, allowing the screen to be more free. Loading a larger screen into a limited phone size can increase one-handed operability, aesthetics, and a sense of technology.
- **Transparent phone-:**Transparent phone is a mobile phone that uses replaceable glass to achieve a visual penetration effect so that its appearance is transparent. Transparent mobile phones use special switchable glass technology. Once the electrically controlled glass is activated by a current through a transparent wire, these molecules will rearrange to form text, icons and other images.
- **Chip phone**-:The idea is that a cell phone can be made directly at the chip level and implanted in the body. Cell phones are used as brain-assisting tools to help improve work efficiency and sensory experience.

Advantages of Smartphones

1. **Instant Communication** -: Smartphones evolved from the earliest communication devices. Thus, it has been created to primarily improve people's way of communicating with each other. The advent of smartphone technology modernized communications. It has paved the way to SMS, text messaging, call, video chat, and apps that allow people to instantly communicate to everyone across the globe.

2. **Web Surfing-:** The smartphones also make it convenient for people to surf the web. These devices are integrated with mobile browsers that enable them to research and access websites anytime and anywhere. According to a study, 10% of the total time spent by people on smartphones is used in opening browsers to surf the internet. With this, people have easy access to information.

3. **Camera-**: In this "selfie" generation, the camera is so important. It saves people from buying a separate digital camera to take photos and videos. Especially now that the millennials are fond of posting photos in the social media. According to a 2014 Comtech study, the camera ranked third as the most important consideration for consumers in buying a smartphone. With this, smartphone giants make sure their phones are equipped with the best camera.

4. **Entertainment-:**Smartphones are also viewed as a source of entertainment – games, music, movies, and books. Based on the 2016 statistics, there are more than 63.7 million people in North America use smartphones for gaming. Moreover, users can listen to their favorite music with iTunes and Spotify, among others. Watching movies and reading e-books are also convenient through smartphones.

5. **Education**-:Smartphones also aid education, especially in children. With easy access to information and helpful content, children can have a more interactive learning through watching education videos and playing education applications. They can also easily surf the internet if they want to search something about a topic.

6. **Productivity Apps**-:Smartphones can do almost everything with the help of apps. There are over 2 million apps in Google Play Store while over 1.5 million apps in Apple App Store. People spend 90% of their time accessing apps in which an average user install 36 apps on their smartphone. The functionality of apps varies from each other – photo and video editor, ticket booking, online store, payment system, data analysis, personal assistant, etc.

7. **GPS** -;Most smartphones now are equipped with Global Positioning System (GPS). This technology allows people to locate certain addresses and area all around the world. This helped improved not just communication, but most especially, transportation.

8. **Privacy**-:With smartphones, you can do whatever you want without anyone knowing it. You can snap photos of yourself and secure your photo library with a password. You can also send messages to your loved ones without the fear of anyone knowing it. Online transactions can also be done through smartphones.

Disadvantages of Having Smartphones

1. **Costly**-:Smartphones can be expensive, especially those high-end phones with great specs and features. Apart from the smartphone itself, some applications require being purchased in order to fully use the other functionalities offered by the app. If you also want data connectivity, you need to maintain a data plan.

2. **Poor Social Interaction**-:Based on the new data released by analytics firm Flurry, people use smartphones at least 5 hours a day. They also added that people's usage of apps increases to 69% last 2017. With this, the "real" social interaction degrades. People no longer interact with people outside as they tend to spend more time with their smartphones.

3. **Distraction**-: Despite the productivity, smartphones can really be distracting. Applications notify you when there are messages, updates, latest offerings, etc. These interrupt the momentum which can potentially affect your productivity. When you attend to these notifications, you'll find yourself attached to the phone.

4. **Health Issues**-: Smartphones are also found to have a negative impact on your health. Smartphones emit radiofrequency energy which can be absorbed by the tissues in the body. Sleep deprivation is also one of the common bad effects of using smartphones. Moreover, phones produce HEV light which can damage your eyes' retina.

5. **Addiction**-: When you wake up in the morning, do you find yourself checking your phone first than anything else? If you do, this is an early sign of smartphone addiction. This problem may lead to a serious addiction. This may include addiction to games, social media, etc.

6. **Privacy Threats-:**Even if smartphones are made private, there are still security risks and threats everywhere. Hackers are always present and virtual viruses are potent. Smartphones are vulnerable to these threats when you access the internet. Thus, you need to be extra cautious of opening sites and links.

7. **Extra Work**-:With high-end smartphone comes…extra work. Smartphones are widely used in business. If you find yourself relying on various apps, then you are working on extra workloads which are not even existent before. Moreover, your boss can instantly call you even in the middle of the night.

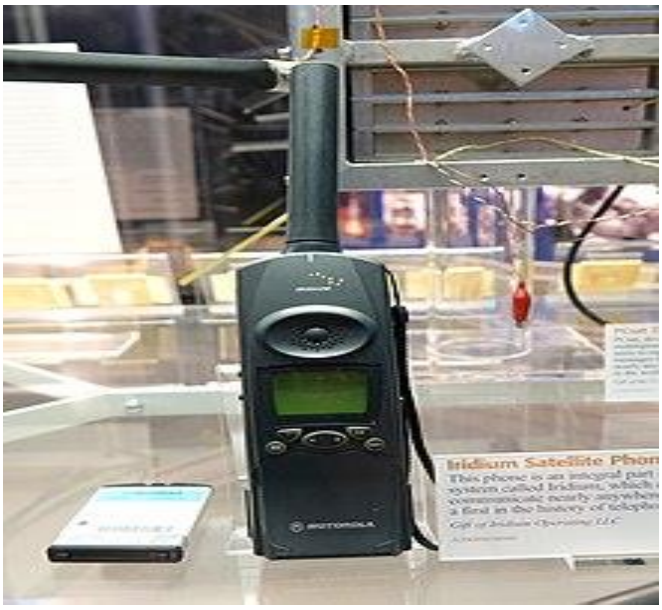
5 Satellite phone

Description

A **satellite telephone**, **satellite phone** or **satphone** is a type of mobile phone that connects to other phones or the telephone network by radio through orbiting satellites instead of terrestrial cell sites, as cellphones do. The advantage of a satphone is that its use is not limited to areas covered by cell towers; it can be used in most or all geographic locations on the Earth's surface.

The mobile equipment, also known as a terminal, varies widely. Early satellite phone handsets had a size and weight comparable to that of a late-1980s or early-1990s mobile phone, but usually with a large retractable antenna. More recent satellite phones are similar in size to a regular mobile phone while some prototype satellite phones have no distinguishable difference from an ordinary smartphone. Satphones are popular on expeditions into remote areas where terrestrial cellular service is unavailable.

A fixed installation, such as one used aboard a ship, may include large, rugged, rack-mounted electronics, and a steerable microwave antenna on the mast that automatically tracks the overhead satellites. Smaller installations using VoIP over a two-way satellite broadband service such as BGAN or VSAT bring the costs within the reach of leisure vessel owners. Internet service satellite phones have notoriously poor reception indoors, though it may be possible to get a consistent signal near a window or in the top floor of a building if the roof is sufficiently thin. The phones have connectors for external antennas that can be installed in vehicles and buildings. The systems also allow for the use of repeaters, much like terrestrial mobile phone systems.



Features

Most satellite phones are not smart phones. With the exception of the Andriod OS-powered Thuraya X5 Touch, satellite phones are pretty basic tools built to be reliable for communicating off the grid. There are some essential features, such as an SOS alerting capability and the ability to send text messages, that most satellite phones now include.

1. Thuraya X5 Touch-: The Thuraya X5 Touch is both a satellite phone and a smart phone seamlessly integrated into one device. Users in Europe, Asia, Australia and Africa can take advantage of it's ability to use whatever network available (satellite or cellular) to connect. The Android Nougat operating system and HD LCD touchscreen, make it the only satellite phone on the market that is a true smart phone. It boasts a USB-C connector for charging and data transfer, front and rear facing cameras of 2 and 8 megapixels, built in GPS and a dedicated SOS button. The X5 Touch has a decent battery life of 100 hours in standby mode.

2. Inmarsat IsatPhone 2-: The IsatPhone 2 by Inmarsat packs quite a punch for it's attractive price point. It has a built-in GPS that allows users to view their position and send via text or email. It offers tracking and has a dedicated assistance button. The high contrast color display is sunlight viewable, which is crucial for any device made to be used outdoors. It has built in bluetooth, audible minute minder feature, alarm and an eCompass. The 160 hour battery life is the longest lasting in the market.

3. Iridium 9575 Extreme-: The Iridium Extreme comes with all the essential feature needed in an off the grid communications tool. It has a dedicated SOS button, and it offers GPS tracking. The 200 character display is daylight readable and backlit. It offers two way texting, it has a integrated speaker phone and 21 supported menu languages. Battery life is 30 hours in standby mode.

4. Iridium 9555-: The 9555 is Iridium's base model satellite phone. It has a 200 character illuminated display and illuminated keypad. The handset has a sleek ergonomic design and offers enhanced two-way texting and easy to hear speaker phone. Battery life is 30 hours in standby mode.

5. Globalstar GSP1700-: Globalstar's GSP1700 boasts the smallest form factor ever for a satellite phone and at just ounces, it is also the lightest. This economy device can fit any budget, but it lacks most of the extra features that are standard in today's satellite phone market. It has a color display with a simple menu structure. Battery life is 10 hours in standby time when connected to the satellite network.

Cost of satellite phone

Cost is important to consider when making any purchase, and satellite phones are no different. But when looking at cost it is important to evaluate what you are getting for the money spent to assess the true value. When making that evaluation we will consider the durability and features of the device and the availability of satellite coverage each network offers. Subscription fees and usage costs are also important considerations when purchasing a sat phone.

1. **Inmarsat IsatPhone 2-:** The IsatPhone 2 sells for $649. It is not the least expensive phone we offer, but because of the value proposition we have decided to rank it the highest. Features like built-in GPS, 2 way texting, SOS and tracking; plus the global network coverage make it

an extremely attractive offer. Minimum cost for full year of service is $440 and typical usage fees for voice calls are $0.99 per minute.

2. **Globalstar GSP1700-:**At $375, the GSP1700 is the by far least expensive phone on the market, but it is important to keep in mind that only refurbished versions of this device are still available. The phone itself lacks a lot of the features the other devices have and the network is regional. Minimum cost for full year of service is $780. This includes 100 minutes per month and additional voice calls are $0.99 per minute.

3. **Iridium 9555-:**The Iridium 9555 standard package is $1,049. Iridium phones cost a bit more than those from Inmarsat and Globalstar, but the value of its brand new, truly global network is a crucial factor to consider. The 9555 offers two-way texting but no tracking or SOS services. Minimum cost for full year of service is $639 and typical usage fees for voice calls are $1.30 per minute.

4**. Iridium 9575 Extreme-:**Iridium 9575 Extreme packages start at $1,295. Even though it is more expensive than its cousin the 9555, we are going to rank it the same due to its additional features of tracking and SOS. Minimum cost for full year of service is $639 and typical usage fees for voice calls are $1.30 per minute.

5. Thuraya X5 Touch-: At $1,295 the X5 Touch is tied for the most expense handheld satellite phone. It's Android operating system and dual mode capability make it by far the most feature rich, but the fact that there is no satellite coverage in the entire Western Hemisphere weigh heavily against the value proposition. Minimum cost for full year of service is $348 and typical usage fees for voice calls are $0.99 per minute.

Comaparison table

Product	**Coverage**	**Service Available**	**Other Benefits**
Inmarsat	Global Except Polar Regions	• Fast Internet • Voice • Fax • Isdn • Streaming Video • Voice • 2400 Bps Data	Fast Internet
Iridium	Global Except North Korea, Poland, Hungary	• G3 Fax • E-Fax • Secure Data • Voice	Global Voice
Thuraya	Regional	• Voice • 9600 Bps Data	-----
Globalstar	Regional, Parts Of Africa, India, Middle East, Australia	• Voice • 9600 Bps Data • Gmprs Always-On Internet	Small Handset

Advantages Of Satellite Phones

1. Wide network coverage
2. Uniform performance irrespective of location
3. Uniformity in phone number
4. No installation/setup required
5. Highly useful in disaster response

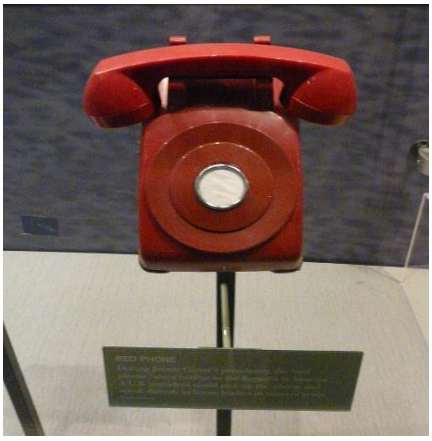
Disadvantages Of Satellite Phone

1. High cost of the phone as well as call cost
2. Large antenna size
3. Delay in voice communications conversations, particularly when using networks based on geosynchronous orbits.
4. Low data bandwidths for Internet access etc.
5. Local government regulations may also prevent one from using satellite phones without prior permission.

6 Hotline

Description

A hotline is a point-to-point communications link in which a call is automatically directed to the preselected destination without any additional action by the user when the end instrument goes off-hook. An example would be a phone that automatically connects to emergency services on picking up the receiver. Therefore, dedicated hotline phones do not need a rotary dial or keypad. A hotline can also be called an automatic signaling, ringdown, or off-hook service.



Hotline phone numbers

True hotlines cannot be used to originate calls other than to preselected destinations. However, in common or colloquial usage, a "hotline" often refers to a call center reachable by dialing a standard telephone number, or sometimes the phone numbers themselves.

Hotline calling process

Your hotline service can't afford to "go cold" when it comes to keeping the lines of communication open. TeleDirect is the leader in call center business process outsourcing (BPO), and our proven communications center software ensures that your organization will effectively convey important information, and also have the ability to receive information requests – and quickly respond.
A call center's hotline requires a practical two-way communication strategy. If you're interested in establishing hotline answering services, keep in mind that information needs to flow in a bi-directional flow:

- **Incoming calls**. Whether it's a new portal to receive, review or respond to incoming customer communication, TeleDirect's hotline service is an affordable, effective solution. Our legendary call center platform infrastructure ensures superior reliability, while your unique needs are easily integrated into our hotline call service menu.
- **Outgoing communication**. While most people regard the idea of a hotline call center as an inbound-only operation, don't forget about reaching out to patients, customers, associates and anyone else impacted by the need for a hotline call center.

This two-way strategy is only the start of your hotline service. TeleDirect will guide you through all the potential pitfalls, unseen problems, and other issues associated with hotline

answering services and hotline call services. We've helped companies all across the country with their hotline call centers, in many different industries and business sectors.

Hotline use in states

1. **Russia–United States**

The most famous hotline between states is the Moscow–Washington hotline, which is also known as the "red telephone", although telephones have never been used in this capacity. This direct communications link was established on 20 June 1963, in the wake of the Cuban Missile Crisis, and utilized teletypewriter technology, later replaced by telecopier and then by electronic mail.

2. **United Kingdom–United States**

Already during World War II—two decades before the Washington–Moscow hotline was established—there was a hotline between No. 10 Downing Street and the Cabinet War Room bunker under the Treasury, Whitehall; with the White House in Washington, D.C. From 1943 to 1946, this link was made secure by using the very first voice encryption machine, called SIGSALY.

3. **China–Russia**

A hotline connection between Beijing and Moscow was used during the 1969 frontier confrontation between the two countries. The Chinese however refused the Russian peace attempts and ended the communications link. After a reconciliation between the former enemies, the hotline between China and Russia was revived in 1996.

4. **France–Russia**

On his visit to the Soviet Union in 1966, French President Charles de Gaulle announced that a hotline would be established between Paris and Moscow. The line was upgraded from a telex to a high-speed fax machine in 1989.

5. **Russia–United Kingdom**

A London–Moscow hotline was not formally established until a treaty of friendship between the two countries in 1992. An upgrade was announced when Foreign Secretary William Hague visited Moscow in 2011.

6. **India–Pakistan**

On 20 June 2004, both India and Pakistan agreed to extend a nuclear testing ban and to set up an Islamabad–New Delhi hotline between their foreign secretaries aimed at preventing misunderstandings that might lead to nuclear war.[4] The hotline was set up with the assistance of United States military officers.

7. **China–United States**

The United States and China set up a defense hotline in 2008, but it has rarely been used in crises.

8. **China–India**

India and China announced a hotline for the foreign ministers of both countries while reiterating their commitment to strengthening ties and building "mutual political trust". As of August 2015 the hotline was yet to be made operational.

9. **China–Japan**

In February 2013, the Senkaku Islands dispute gave renewed impetus to a China–Japan hotline, which had been agreed to but due to rising tensions had not been established.