



# REAL TIME TELEMEDICINE SYSTEMS

A STORY OF NEW ERA IN  
VIRTUAL HEALTHCARE

# WHO WE ARE?

**Telemedicine Labs and Research Private Limited is a research organization and a global platform of scientist working for the invention and development of distance clinical practice, health monitoring, virtual health platform for both doctor and patients.**

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**Telemedicine Labs is the member of**

**Japanese Telemedicine and Telecare Association**



# ABSTRACT

When did telemedicine start? From house calls to urgent care clinics, on-demand healthcare has always been a hot commodity. After all, nobody schedules strep throat or a twisted ankle ahead of time. The modern patient expects 24/7 access to their doctor, and physicians today are able to use telemedicine to monetize remote assistance. Technologies like FaceTime and Skype seem brand new, but actually, telemedicine has been around much longer than most people think—from the first half of the 20th century.



# WHAT IS TELEMEDICINE — IN GENERAL CONCEPT?

**Telemedicine** is the use of technology that enables remote healthcare (**telehealth**). Basically it makes it possible for physicians to treat patients whenever needed and wherever the patient is, by using a computer or smartphone.

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# WHAT IS TELEHEALTH? HOW IS TELEHEALTH DIFFERENT FROM TELEMEDICINE?

The Health Resources Services Administration defines telehealth as the use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration. Technologies include videoconferencing, the internet, store-and-forward imaging, streaming media, and terrestrial and wireless communications.

Telehealth is different from telemedicine because it refers to a *broader scope of remote healthcare services* than telemedicine. While telemedicine refers specifically to remote clinical services, telehealth can refer to remote non-clinical services, such as provider training, administrative meetings, and continuing medical education, in addition to clinical services.



# HISTORY OF TELEMEDICINE

**Telemedicine** technology first began as a form of healthcare delivery in the late 1960s due to the needs of the National Aeronautics and Space Administration (NASA) and the Nebraska Psychology Institute, according to a paper written by researchers from Saint Louis University and Bentley University

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Probably one of the earliest and most famous uses of hospital-based **telemedicine** was in the late 1950s and early 1960s when a closed-circuit television link was established between the Nebraska Psychiatric Institute and Norfolk State Hospital for psychiatric consultations.

# FUTURE OF TELEMEDICINE – IN GENERAL

The market is expected to grow at a CAGR of 14.9% over the forecast period 2019 to 2026 as more hospitals and healthcare facilities bring this technology online.

**Telehealth** has the potential to reduce healthcare costs, improve patient outreach and health outcomes, and change the way providers treat their patients.

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During Covid-19 situation the same scenario has ben explicated and it's being accelerated rapidly on 2020.



# TYPES OF TELEMEDICINE

There are **three main types of telemedicine**, which include

1. store-and-forward telemedicine
2. remote monitoring based telemedicine
3. interactive telemedicine

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Each of these has a beneficial role to play in overall health care and, when utilized properly, can offer tangible benefits for both healthcare workers and patients.





# DETAILS

**Store-and-forward telemedicine** is collecting clinical information and sending it electronically to another site for evaluation. Information typically includes demographic data, medical history, documents such as laboratory reports, and image, video and/or sound files.

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**Remote patient monitoring** is a method of healthcare delivery that uses the latest advances in information technology to gather patient data outside of traditional healthcare settings.

**Interactive Telemedicine** (also called live **telemedicine**) makes it easy to do a doctor-patient visit anytime, anywhere. Live **telemedicine** includes any two-way communications (including video conferencing and phone consultations) that let providers and patients communicate in **real-time**.



# CHALLENGES AND LIMITATION IN CURRENT TRADITIONAL TELEMEDICINE SYSTEM

Before this discussion lets discuss something else...  
We will come back shortly

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# WHAT IS MANDATORY VITALS IN CLINICAL EXAMINATION?

Examination of body temperature, heart (pulse) rate (HR), respiratory rate (RR), and blood pressure (BP) provides the physical therapist with important data about the status of the cardiovascular/pulmonary system. Owing to their importance as indicators of the body's physiological status and response to physical activity, environmental conditions, and emotional stressors, they are collectively referred to as **vital signs**. Because many important clinical decisions are based in part on these measures, accuracy is essential.



In traditional telemedicine system it's impossible to do directly with the live participation between treating doctor and patients.

But in our **Hybrid Real Time Telemedicine System** it's possible

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**in completely live mode**



# WHAT IS STETHOSCOPE? WHAT IS THE NECESSITY?

The **stethoscope** is a device that helps **physicians** or healthcare providers listen to the internal organs, such as lungs, heart and bowel sounds, and it is also used to check blood pressure. It helps to amplify the internal sounds. **Doctors are using stethoscope** to check the presence of risk factors, such as high blood pressure, coronary artery **disease** or diabetes. Using a **stethoscope, doctor can** listen to patients' lungs for signs of congestion. The **stethoscope** also picks up abnormal **heart** sounds that may suggest **heart failure**



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Now we will review some basic specialized  
**examinations**

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# BASIC OF CARDIOVASCULAR EXAMINATIONS

## What is included in a cardiovascular assessment?

A focused **assessment** of the **cardiac** system includes a review for common or concerning symptoms: Chest pain—**assess** location, when it occurs, intensity, type, duration, with or without exertion, radiation, associated symptoms (shortness of breath, sweating, nausea, palpitations, anxiety), and alleviating factors.





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# BASIC OF RESPIRATORY EXAMINATIONS

How do you assess a patient for respiratory problems?

Auscultation. Ask the **patient** to breathe slowly and deeply through their open mouth. Using the diaphragm of your stethoscope, listen in the ladder pattern posterior and anterior, noting the breath sounds. Listen in each area for at least one full breath.

What is included in a respiratory assessment?

The elements **included** are: an initial **assessment**, history taking, inspection, palpation, percussion, auscultation and further investigations. A prompt initial **assessment** allows immediate evaluation of severity of illness and appropriate treatment measures may warrant instigation at this point.



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# BASIC OF ENT EXAMINATION

## What is ENT Examination?

A complete **ENT examination** includes inspection of the face, ears, nose, throat and neck. We generally screen for hearing loss and we use pressure testing to examine the eardrum for fluid (pneumatic otoscope or tympanometry).

## Q. How does ENT check your ears?

First, doctor will examine **the** outside of **ear**. Then doctor will use something called an otoscope to look inside. It's a handheld tool with a light and a magnifying lens that lets **your** doctor see into **your ear** canal and get a view of **your** eardrum.



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# BASIC OF OPHTHALMOLOGIC EXAMINATIONS

1. **Visual acuity**
2. **Pupils**
3. **Extraocular motility and alignment**
4. **Intraocular pressure**
5. **Confrontation visual fields**
6. **External examination**
7. **Slit-lamp examination**
8. **Fundoscopy examination**

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# BASIC OF DERMATOLOGY

## What does a dermatologist do on your first visit?

**Dermatologists** need to know about health problems and medications that **could** impact **your** skin. **From** there, **your** doctor will examine **the** problem that brought **you** to **the appointment**. They will also likely perform a full-body skin check to look for any troublesome moles or signs of other skin conditions.

## What does a skin check involve?

During a **skin check** your doctor will examine your entire **skin** surface, including areas not usually exposed to sunlight. They may measure the size of moles or freckles. The doctor may also examine suspicious spots using a hand held microscope called a dermatoscope.





So, we have overcome the major limitations of Traditional Telemedicine Systems  
with our

**Hybrid Real Time Telemedicine System it's possible**

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In Traditional Telemedicine System, the only alternative option is to involve one assistant / helping doctor at patient's site to relay the clinical examination with treating doctor.

But here also the treating doctor is different from the attending doctor.

Ethically it's a big limitation within the current available system.



**So, finally to cover up the limitations we have come with our invention**

world's first hybrid

**Real Time Telemedicine System which is copyrighted**

Including

**Live Clinical Examinations and Vital Check up**

**that can work both online or offline mode.**

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**In three variants**

- 1. Portable Two Wheeler Real Time Telemedicine kiosk which in with brand name “Med2Wheels”**
- 2. Standing Real Time Telemedicine Kiosk for Corporate, Industrial, Educational, Marine and Defense Application**
- 3. Telebulance Real Time Mobile Telemedicine Emergency and Critical Care vehicle with negative pressure, ICU and CT scan facility.**



# WHY WE ARE USING THE WORD HYBRID?

As because, this system can work both in online and offline mode but live.

Data Connection is not a barrier.

It can work in 2G/3G/4G/5G even with the support of satellite.



# WHAT EXACTLY RT TELEMEDICINE CAN DO

Live Vital Sign

Live Imaging (Echo, ECG, Ultrasound)

AI based detection of Cardiac Malfunctions

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Early Diagnosis of Pneumonia with AI

Live Endoscopic and HD

3D Imaging of Lung

Pre-Stroke Alarming

Early Renal Malfunctions detection

Live CPR monitoring

Live ICU Management

Live camera control with Hippo

Live negative imaging and dicom file conversion

Live prescription with AI back up

Live microscopic examination

And many more.....



# WHAT IS MED2WHEELS

This is the world's first portable real time telemedicine kiosk ready to provide real time telemedicine service at your doorstep on call through mobile application (iOS / Android)



# MED2WHEELS - HOW IT WORKS?

Med2Wheels is equipped with portable real time telemedicine devices and systems along with trained Telemedicine Operator Paramedic will reach you once you call or book through mobile application.

Once it reach patient's home, the telemedicine staff will connect the system with desired doctor.

Then the patient can have the real time telemedicine support instant by sitting at home in live mode even in mid night and this is 24/7 service.



# TYPES AND FEATURES – MED2WHEELS

Med2Wheels – genmed

Med2Wheels – Palliative

Med2Wheels – PT

Med2Wheels – Cardio

Med2Wheels – Femina

Med2Wheels - Seniors

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# OTHER FORM OF RT TELEMEDICINE KIOSK

Corporate RT Telemedicine Kiosk  
Edusave RT Telemedicine Kiosk  
Industrial RT Telemedicine Kiosk  
Genlife RT Telemedicine Kiosk  
Armorshield RT Telemedicine Kiosk  
Maritime RT Telemedicine Kiosk  
Telebulance



Size: 7.5' x 5.5' x 8'



# WHAT WE HAVE DONE

1. Ready to launch - 70 numbers of Med2Wheels Portable Telemedicine Kiosk at Delhi NCR
2. Ready to launch - 52 numbers of Med2Wheels Portable Telemedicine Kiosk at Kolkata
3. Launched 1 Free Standing Kiosk at Kolkata
4. Launched 1 Free Standing Kiosk Murshidabad, West Bengal
5. Launched 1 Free Standing Kiosk at Noida, Uttar Pradesh
6. Prepared iOS, Android application for user and android application for med2wheels rider
7. Have trained 278 number of Paramedics virtually on Real Time Telemedicine.



# PROJECTION BY 31<sup>ST</sup> MARCH 2021

1. Telecom synchronization for Hippo and Med2Wheels
2. Clinical trials of 200 portable diagnostic test
3. 378 new med2wheels portable kiosk for Delhi and NCR
4. 105 new palliative care portable Med2Wheels Real Time Telemedicine Kiosk for Kolkata, West Bengal
5. Tech trial of Rider, User application.
6. On ground trial of Free Standing Telemedicine Kiosk with Railways and Defense.
7. Launching NRI based EMR
8. 2000 Portable Med2Wheels for each three major cities, Delhi NCR, Bangalore, Kolkata.
9. 10 Corporates, 5 Schools, 5 Colleges, 2 Universities would be coverage of Free Standing Real Time Telemedicine Kiosk

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# PROJECTION BY 31<sup>ST</sup> DECEMBER 2030

1. Build 1 Free Standing Real Time Telemedicine Kiosk beside every railway station, airport in India
2. Build 1 Free standing Real Time Kiosk at every border outpost to ensure secure connection between border outpost and central command hospital of defense.
3. Build 1 Free standing Real Time Telemedicine Kiosk in every school in India
4. Build 2 Free standing Real Time Telemedicine Kiosk in every shopping mall in India
5. Build 1 Free standing Real Time Telemedicine Kiosk in every village in India where connectivity is too low
6. Build 1 Free standing Real Time Telemedicine Kiosk in every high commission of India all over the world.
7. Install 1 Marine Telemedicine Kiosk in every defense, cargo, passenger's ship holding Flag of India
8. Install 1 Marine Telemedicine Kiosk in every submarine holding Flag of India
9. Install corporate and Industrial Kiosk in every corporate house, industry in India
10. Launch minimum 5000 Telemedicine Portable Kiosk in every metro city in India for 24/7 operations would be run on android and iOS application with brand name "MED2WHEELS"
11. To enable HIPPO VR based Telemedicine Technology for 4<sup>th</sup> Gen. Telemedicine in every super specialty Hospital in both private and govt. sector.



Thank you

