

Why Telepresence Robots and Not FaceTime, Hangout, Skype, or Zoom?

Patricia Bahr, MSE, ATP, RET

Bahr Assistive Technology Consulting, USA

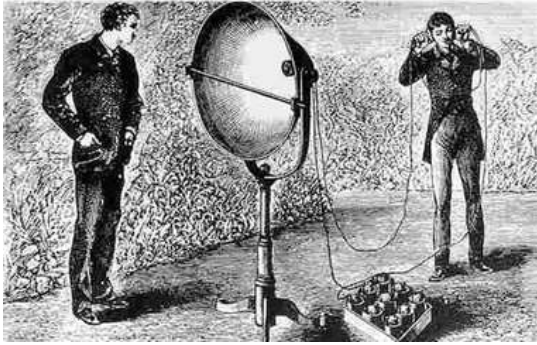
John Achrazoglou, PhD,

University of Iowa, USA

What is the Definition of Telepresence Robot?

- Computer- or device-controlled robots
- Allow people to view & hear the robot's operator
- Operator can view and hear what the robot is looking at and hearing
- Allows someone to be in and move around in two places at once

What is the history of remote-distance communication?



Photophone, 1st
wireless telephone
(1880) Bell & Tainter



Marconi transmitting 1st
radio signal across the
Atlantic (1901)



Bell Labs video phone
prototype (1927)

History of remote-distance communication (continued)



Zenith *Space Commander 600* wireless TV remote control (1956)



Ericsson videophone (1969)



AT&T Picturephone (1969) the results of decades long R&D at cost of > \$500M US

Who Uses Telepresence Robots?

- Business
- Healthcare
- Homes
- Education

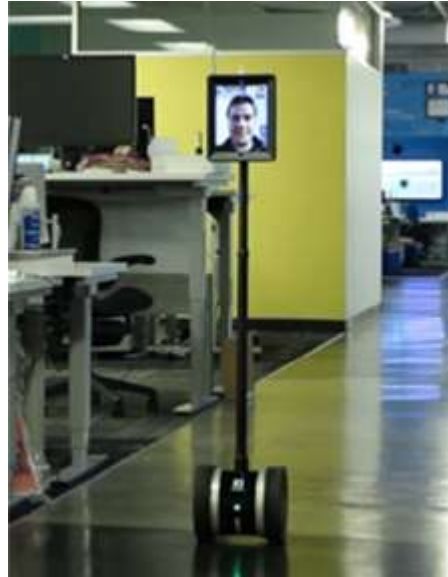
How are they used in Business?

- Professionals
 - Remote meetings
 - Tours
 - Reduce travel time & \$
- People with IDD
 - Remote coaching
 - Remote check-in



How are they used in Healthcare?

- Physician rounds (for a third time)
- Expert advice (for remote hospitals)
- Evaluations



How are they used in Homes?

- Individuals with IDD, Seniors, or in care facilities
 - Meetings with the President
 - Remote check-in
 - Check on care
 - Connect with loved ones



<https://youtu.be/SZCQT-DYVNY>

How are they used in Education?

- Homebound students
 - Participate
 - Hang out w friends
 - Attend field trips
- Professional students
 - Attend class
 - Small group discussion
 - See what's on board



How are they used in Education?

- Professional development
 - Reading specialist
 - Math specialist
 - Remote lectures
- Oversight
 - Principals have presence



Why Not Facetime, Hangouts, Skype, Zoom? (part 1)

Tours and Meetings

- Mobility allows for tours.
- More natural conversation whether sitting or standing.

Why Not Facetime, Hangouts, Skype, Zoom? (part 2)

Presentations

- Audience will interact with robot more than Facetime, Hangout, Skype, Zoom.
- Main screen can be blank for focus on robot.

Why Not Facetime, Hangouts, Skype, Zoom? (part 3)

Students

- More naturally move to have conversation with someone next to them.
- They can walk with others.
- People with disabilities can show more of their personality.

How do telepresence robots compare? (part 1)

- \$800-\$36,000 US
- Auto docking
- Crash avoidance
- Pan-tilt-zoom video camera
- Speed (up to 3.5 mph)



PadBot



Peoplebot



QB

How do telepresence robots compare? (part 2)

- Zoom
- Headlights
- Swivel
- Telemedicine



Vgo



AMY A1



Teleporter



Giraff



Vita

How do telepresence robots compare? (part 3)



Synergy Swan



FURo-i



Carl



Webot



Beam Plus



Oculus

Double Robot 2 specs & features (part 1)

- Double Robotics, Inc
- \$2,499 US w/o iPad
- Charging dock (optional)
- Balancing algorithm
- Run time about 8 hours, 2 hours recharge to full capacity
- Adjustable height 47" - 60" tall
- Approximately 15 lbs

Camera Kit

150° lens and 5 MP camera

iPad

iPad Air 2 or iPad Pro 9.7" recommended (not included)

Audio Kit

Amplified Speaker
Directional Microphone

Double

Self-Balancing
Motorized Height
Dual Kickstands
6-8 hr Battery Life

Charging Dock

Always charged.



Double Robot 2 specs & features (part 2)

- Operate with iPad, iPhone, iPod touch, or a Google Chrome browser (optimized for Chrome)
- 2nd generation or later iPad's
- Free Double iOS app for iPad
- Account required
- 30 day money back guarantee.
- One year warranty, extended 3-year \$499 US
- No monthly fee



Double Robot 2 specs & features (part 3)

- Video encrypted
 - WebRTC 128-bit AES encrypted video standard via OpenTok
- iPad inserted upside down
 - Use guided Access
 - Paired with Bluetooth
- Can take pictures
- Can display a website on the iPad
- Can share desktop w/ up to 5 other people



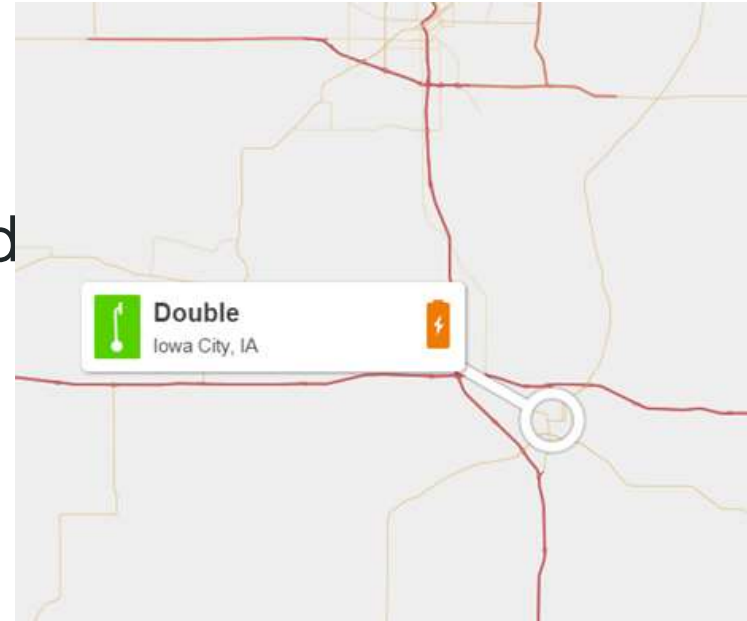
Double Robot 2 specs & features (part 4)

- 150 degree wide-angle lens, 5 megapixel camera kit (\$249)
- Floor view
- Night vision
- Optional travel case \$699 US
- 6% education discount

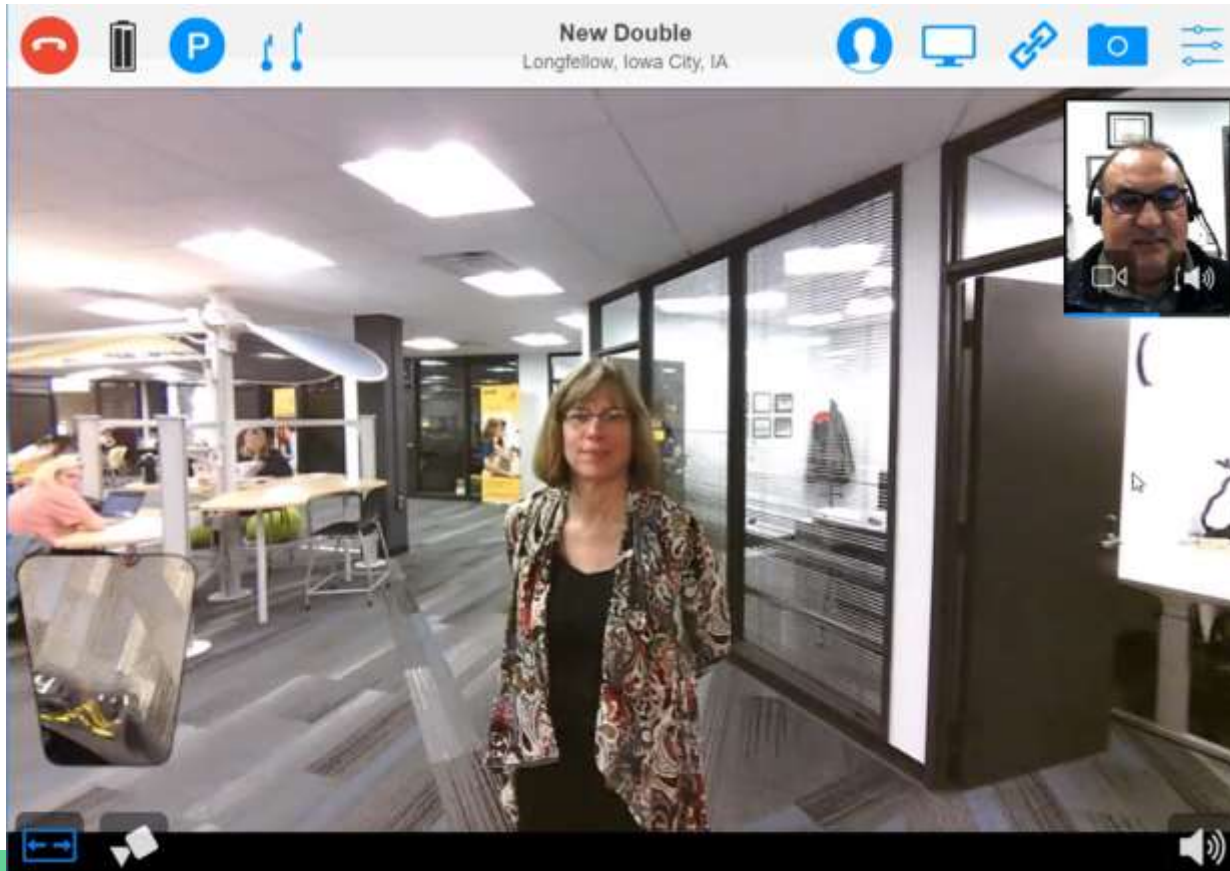


How do you connect and operate a Double robot?

1. Prepare the iPad/robot
 - a. Ensure internet connection
 - b. Bluetooth connect robot & iPad
 - c. Go to Double app on iPad
2. Prepare the computer
 - a. Go to doublerobotics.com
 - b. Login
 - c. Select the robot in GPS window



What does it look like on the computer?



Keyboard Controls for Chrome

Command	Action
Up / W	Forward
Down / S	Backward
Left / A	Turn Left
Right / D	Turn Right
M	Mute
P	Park
Esc	End Call
Space Bar	Look Down
R	Raise Pole
F	Lower Pole

Contact Information

Patricia-Bahr@uiowa.edu or pbahr225@gmail.com

John-Achrazoglou@uiowa.edu