

# EPICwheels



ENPH 479  
Group 1252  
2012W

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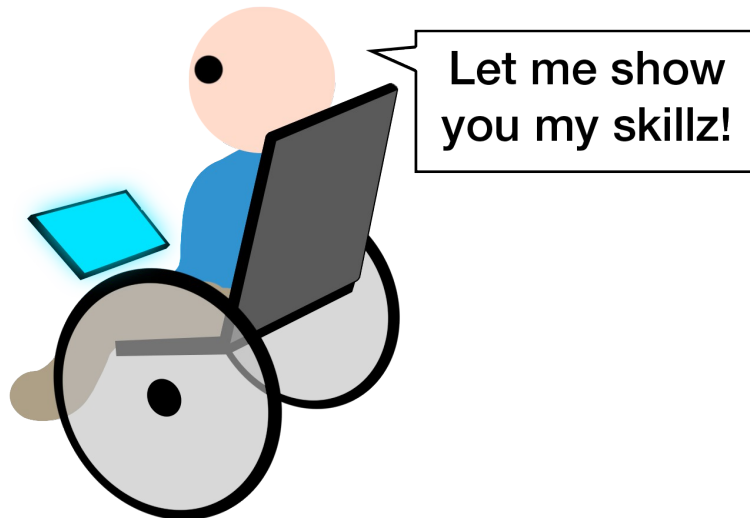
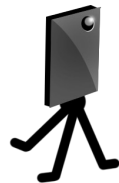
# Introduction

- EPICwheels is an Android app that trains people how to use wheelchairs by playing videos to wheelchair users to teach them new skills.
- Enhanced Participation In the Community by Improving Wheelchair Skills



# Motivation

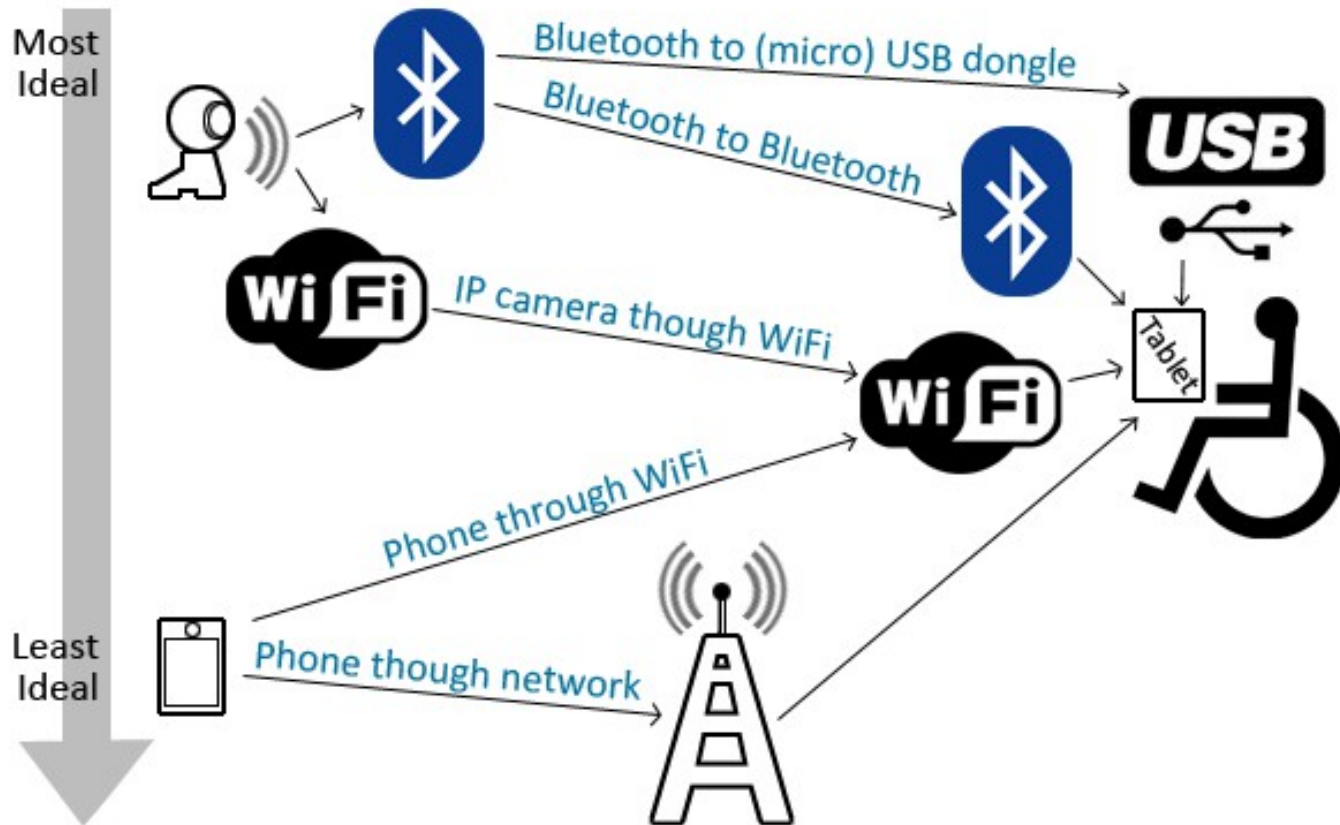
- For people living in remote places, it is inconvenient to visit a therapist in person.
- **Problem:** currently a remote therapist cannot see how well the wheelchair user is learning.
- **Solution:** let users record videos of themselves performing new techniques.



# Objectives

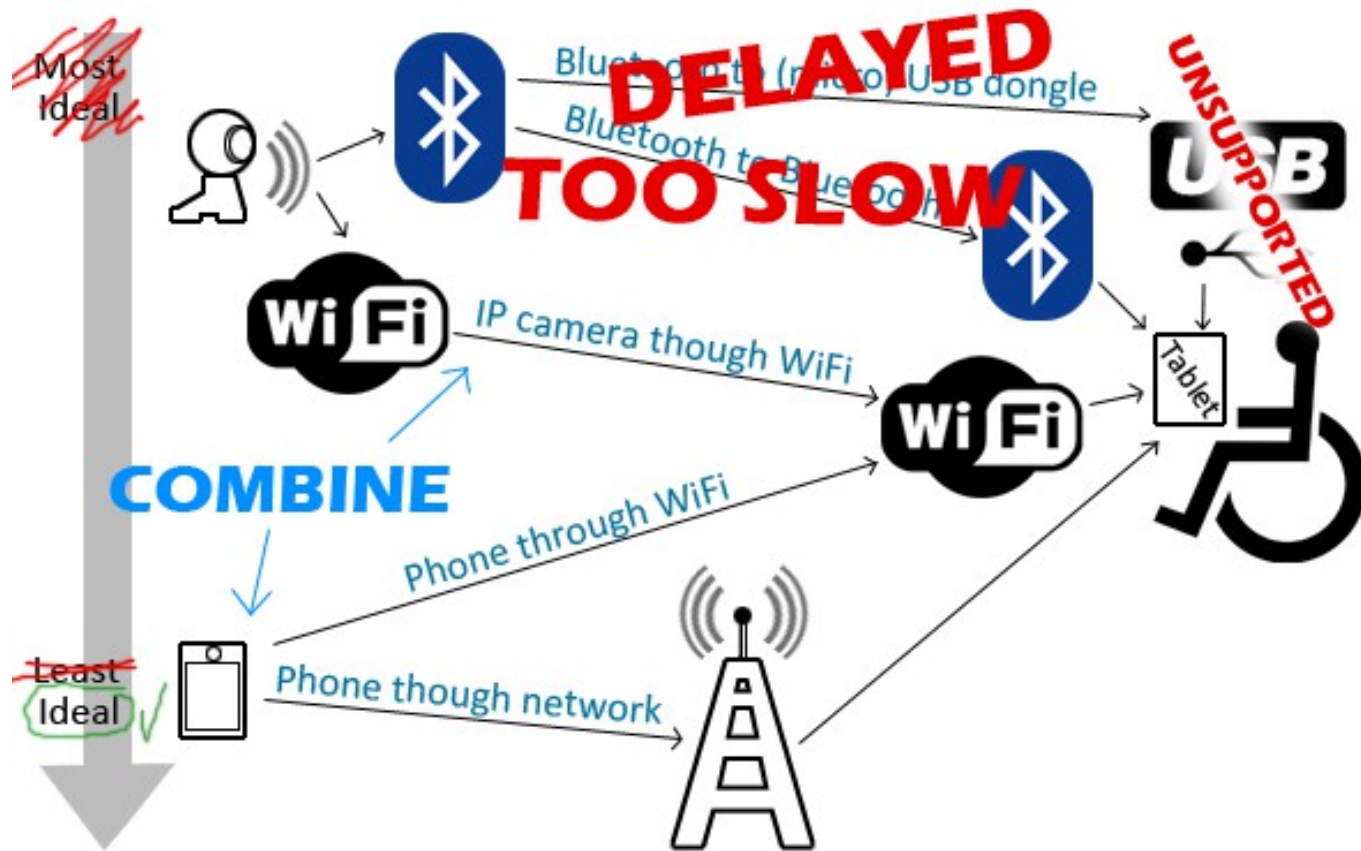
- Stream video from a wireless camera to Android tablet.
- Record the video on the tablet for sending to the remote therapist.

# Feasible Solutions



# Feasible Solutions

(updated!)



# Current Solution

- IP Webcam app.
  - Free, open source (GNU GPL v2).
  - Easy to use.
- Motion JPEG (MJPEG) stream.
  - Basic video stream.
  - Frames compressed individually.
  - Stream accessed by connecting to URL provided by IP Webcam.





# Current Solution

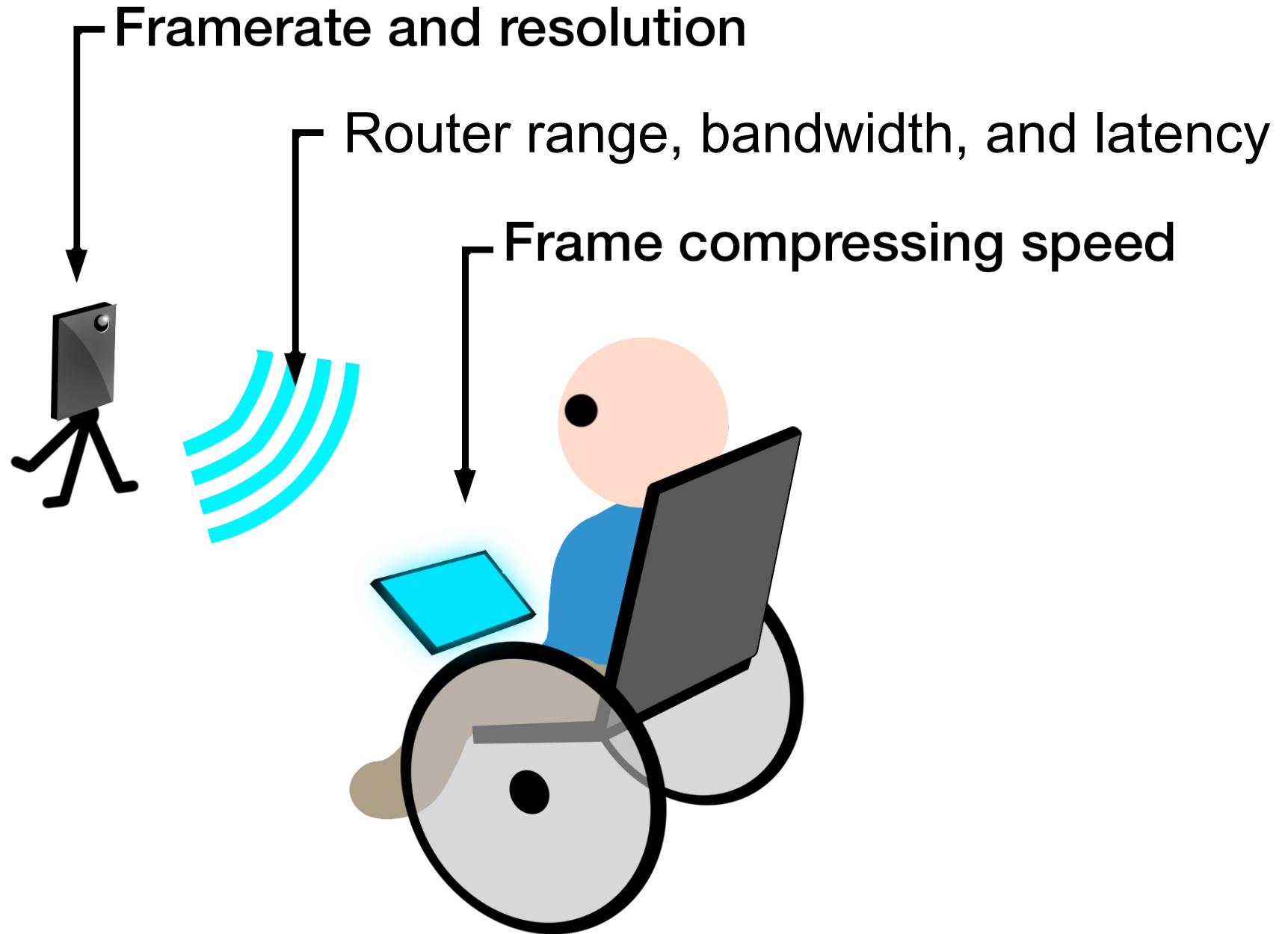
- Save received frames as JPEG images.
- Encode frames into video using FFmpeg library at the end of recording.



Motion blur simulated. Do not attempt excessively high speed wheeling at home.



# Solution Concerns



# Project Plan

- Build demo Android app.
  - Stream from IP Camera
  - Record and playback
- Integrate demo app into EPICwheelsS.
- Analyse performance and usability.
  - Video quality
  - Recording range

# Conclusion

- EPICwheelsS allows people to learn to use a wheelchair at home.
- Wireless video recording allows therapist to provide useful evaluation and feedback on the student's progress.
- Our solution uses an Android phone as a camera to stream video to an Android tablet.