Low Bandwidth Alternative for Online K-12 Education

Yifeng Cao and Ashutosh Dhekne

Introduction

- Education gap widens during calamities
- Rural/Urban divide
- Economic divide

The Problem

Need for high-speed Internet for video transmission

Our Approach

Develop a low-bandwidth solution: Uni-directional, audio, instructor avatar and whiteboard writings

What Students See

Instructor avatar and whiteboard renderings

Transmission Innovations

Low bandwidth needs, allow FM transmissions of data and audio

Future Work

- How to enable a duplex channel?
- Facial expressions of teacher?

Localization of the pen and human pose tracking using UWB + IMU sensors

[ViSig, IMWUT ’23]
[ITrackU, MobiSys ’21]

[Image]