

# Defining Factors that Support or Hinder Commercially-Available Augmented Reality (AR) Devices for Construction Communication

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## ABSTRACT

Augmented Reality (AR) presents virtual content in its physical context. This technology can enable construction professionals on-site and off-site to communicate using virtual annotations to highlight contextually-relevant details. Theoretically, AR has the potential to reduce the amount of site visits and the time spent physically traveling to and from projects. However, the majority of studies exploring AR commercially-available devices present results from controlled implementations or laboratory environments. While those help for initial experimentation, they do not involve all the critical factors that can be present on active construction sites. Therefore, this work explores the technological performance of a commercially-available AR device in an uncontrolled construction setting. The factors that enable or hinder AR performance are documented. The findings help construction practitioners strategically target the contexts where the technology thrives, while also helping researchers define more robust technology and environment workflows to enhance the functionality of current-generation AR devices.