ARcadia: A Rapid Prototyping Platform for Real-time Tangible Interfaces. Kelly, et al. CHI. 2018.

What are the core research questions addressed by the work?

- How can we enable real-time interactivity with tangible elements in the prototyping phase?

What motivates the work?

- Paper prototyping method do not easily allow for the prototyping of real-time, tangible interactive systems
- AR has potential in providing real-time interactivity

How does the work understand the usage, capabilities, and limitations of paper?

- Paper prototyping: Simple, low-cost, but does not allow for the prototyping of real-time, tangible interactive systems

What is the target application domain of the work?

- Design
- Education

What are some proposed extensions to paper proposed by the work?

- Enabling interactivity
- Enable embedding of real-time music and 3D content

What design constraints or objectives guided the work's implementation of the proposed extensions?

- States the following design guidelines:
    - Custom mapping from markers to elements
    - Real-time interactivity
    - Low-cost materials
    - Novice friendly
    - Built in abstractions
    - No specialized hardware
    - Real time AR & sound displayed in browser

How are the proposed extensions implemented?

- Fiducial markers for prototype component tracking
- Web browser-based AR employing a magic window sort of metaphor

What findings have been obtained from either the implementation process or an evaluation of the proposed system?

- Work presents the design of a low-cost, toolkit for rapid prototyping of real-time, interactive and tangible interfaces
- Limitation: AR recognition occasionally inconsistent