

Introduction

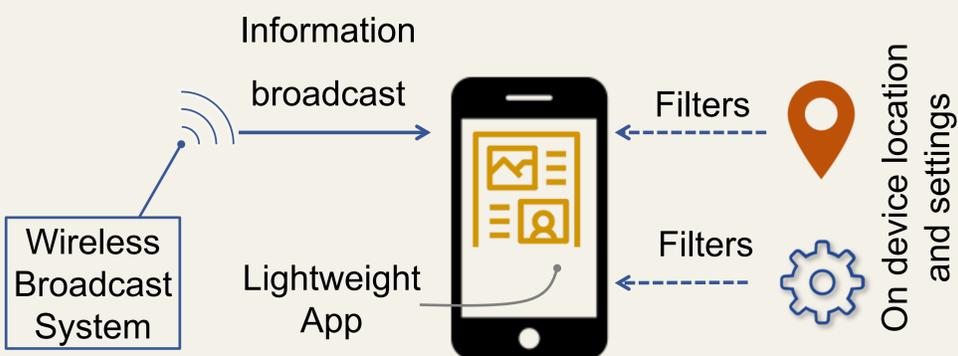
This demonstration presents a location-based information providing system with following advantages that distinguishes it from existing systems.

- **Light-weight:** no pre-loading of information is required
- **Generic:** one app can be used in any place
- **Privacy-preserving:** user does not transmit any data; no Internet connection requirement; no user location shared with anyone
- **Easily updated:** information displayed can be easily updated by changing the broadcast, which is in full control of the building administrator
- **Scalable:** our broadcast system can support infinite number of users

Core Idea

Functions of components:

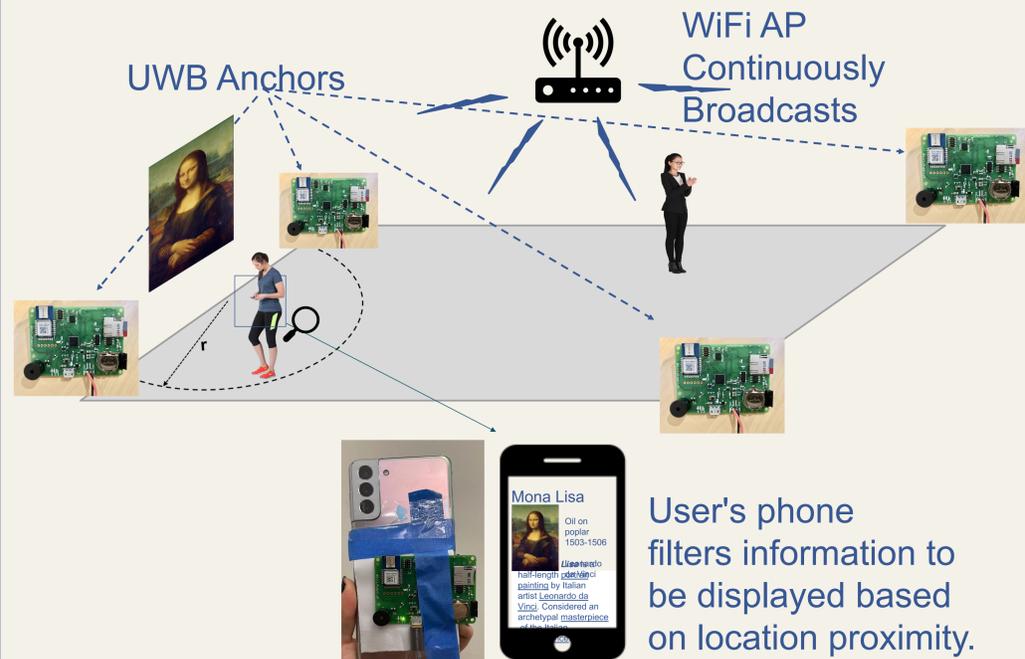
- **Broadcast System:** broadcasts location-labelled information
- **Mobile Phone:** filters information to be displayed based on user location
- **Indoor Localization System:** enables the mobile phones to passively localize indoors



System Design

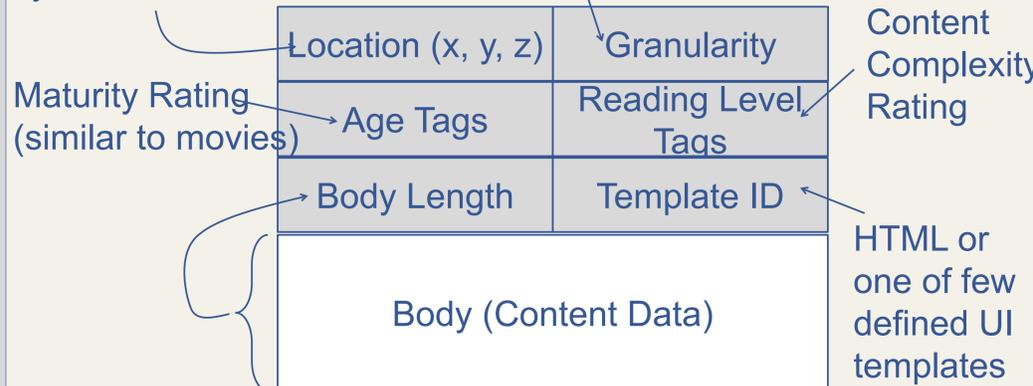
Our implementation consist of three components:

- UWB-based passive TDoA localization
- WiFi Access Point broadcast
- User applications



Location in the appropriate coordinate system

Pertinent range around the location



Demo Showcase

Tourists: Feel free to get one of our Android phones and walk around to see descriptions of artifacts in the room. Enjoy your tour!

Museum Managers: Please add/ delete/ change information of artifacts using our excel form, and your changes will be broadcasted to all tourists in real time!