

# *A GENI Use Case: STEM Education*

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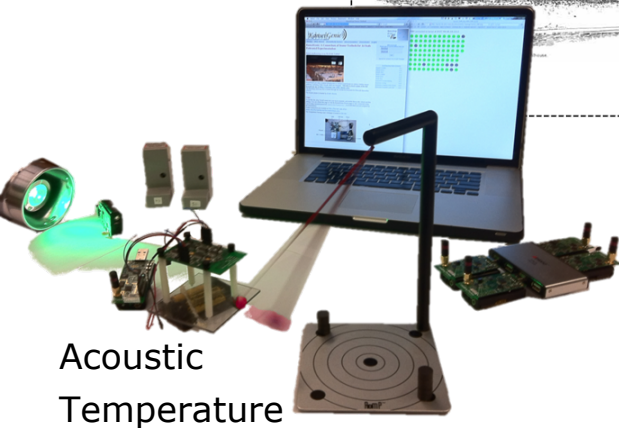
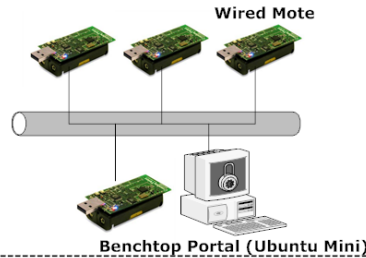
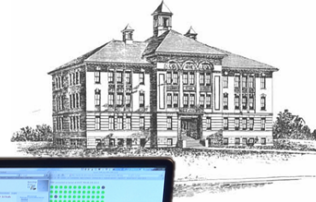
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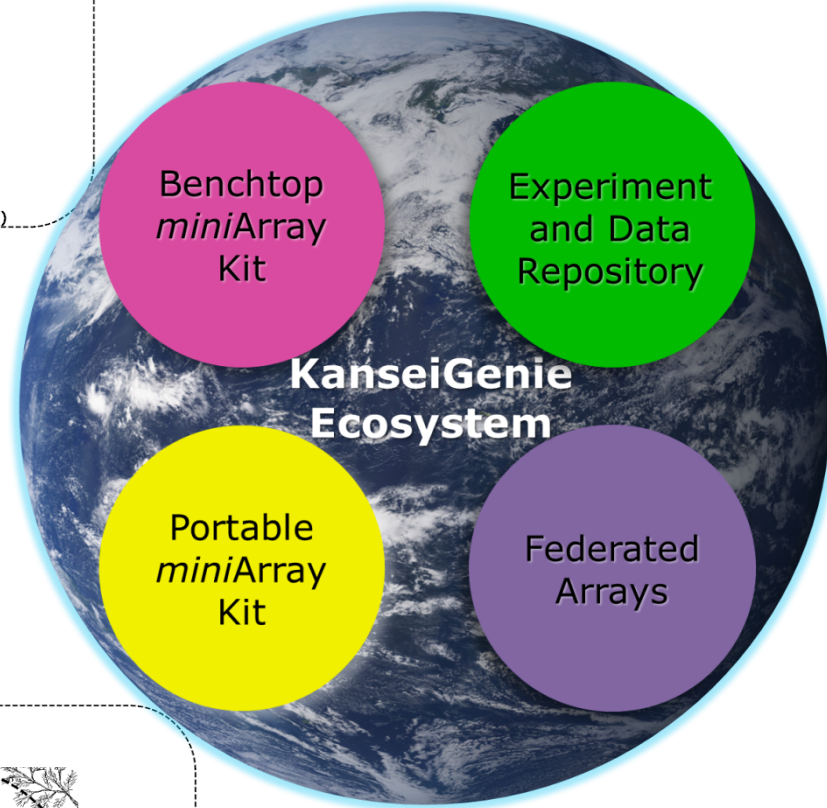
# Concept

## Benchtop miniArray Kit (BAK)



Acoustic  
Temperature  
Light  
Radar  
CO<sub>2</sub>

## Portable miniArray Kit (PAK)



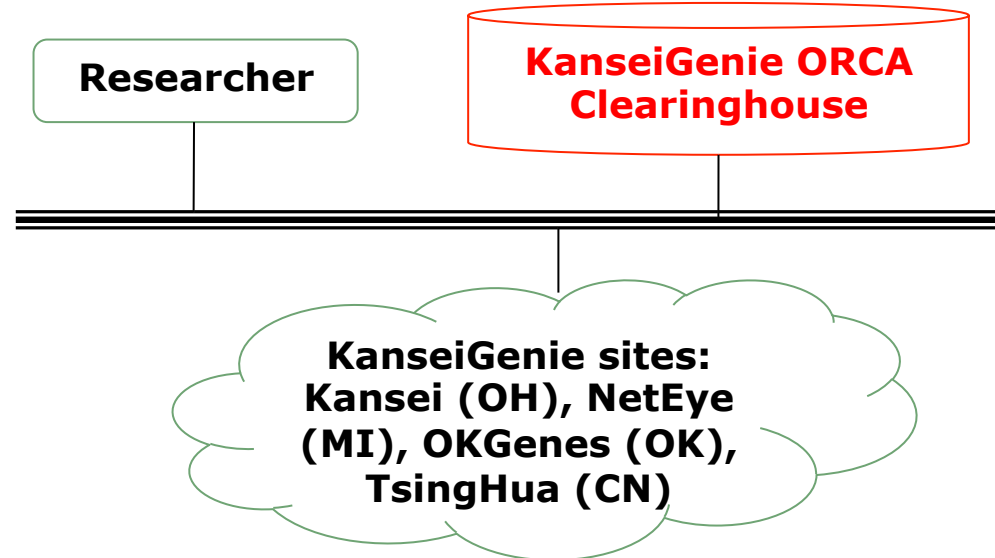
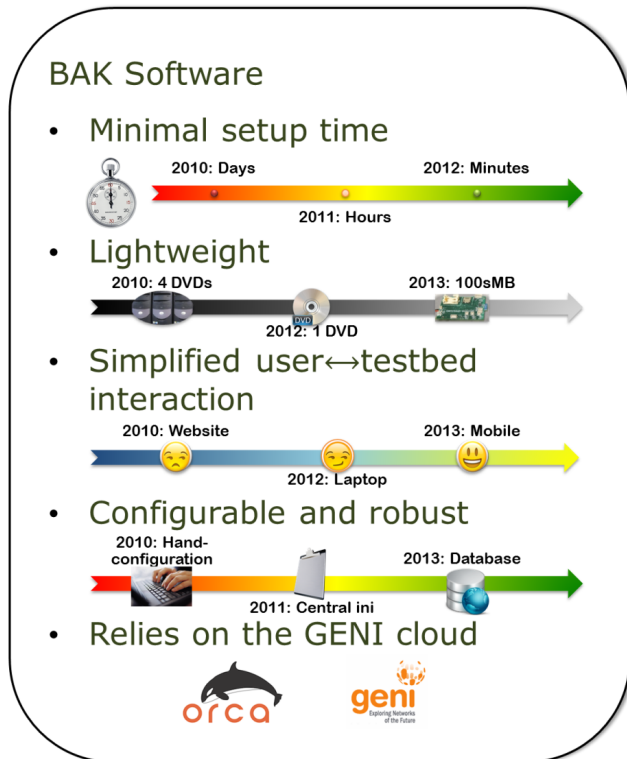
# Operational Details

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- Schools provide computer to run KanseiGenie VM image
  - each students gets a sensor node
  - students use web browser to access local VM portal
- Image pre-loaded with apps; more apps available online
  - kit is stand-alone until user is ready for cloud resources
  - kit array can be exposed to cloud as a programmable fabric
- Cloud machines (presently self-hosted at OSU)
  - to act as “Data Hub” , “App Store” , “STEM Social Network”
  - to run ORCA actors to shepherd kit arrays as resources in federated sensor arrays

# Leverage of GENI

- Stripped down installers from KanseiGenie, and continued plan for GENI “cloud” resources



Web based portal for experiment control and data in-/ex-filtration

# *Our Need: Cloud Resources for Control Framework, App Store, Data Store, STEM Social Network*

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## Options:

1. Leverage a GENI rack, running at Ohio State
2. Leverage persistent GENI facilities running elsewhere
3. Port control infrastructure to a third party cloud provider

*The first would be great, the second the next best, the third has several unknowns*