



# From education to action: How technology enables public participation in the context of environmental conservation



# UCL

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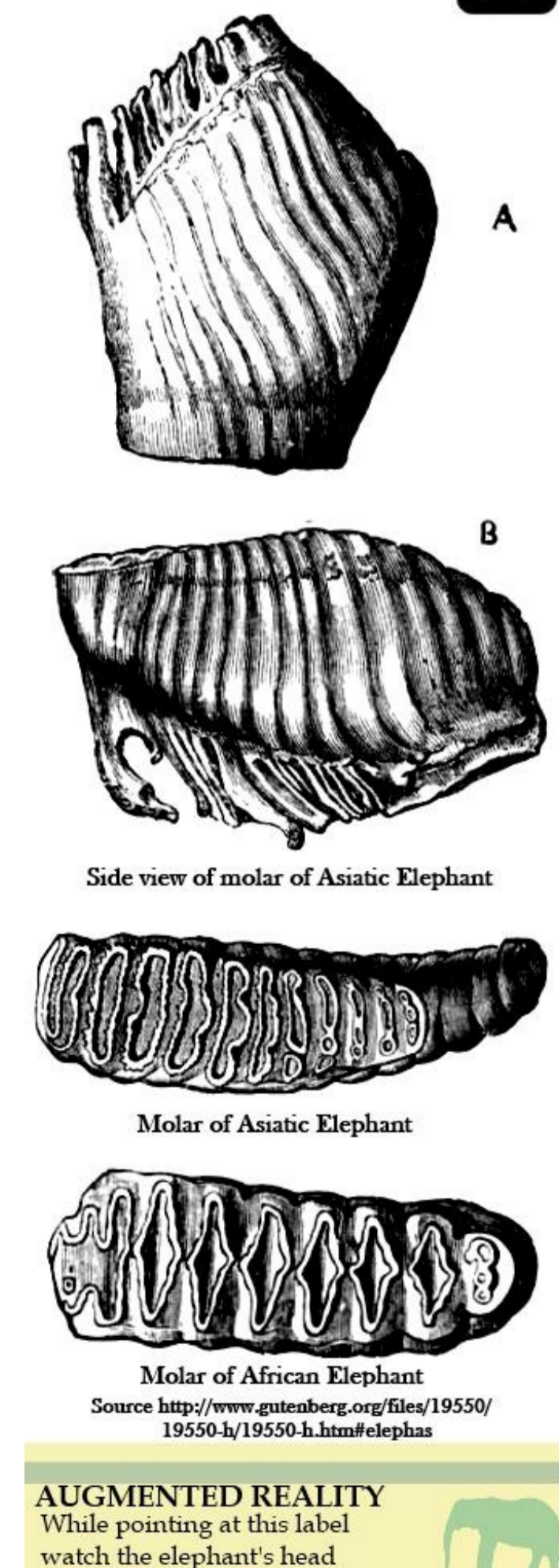
UCL's **ExCiteS** group develops **theories, tools** and **methodologies** to enable communities **anywhere** to **engage** in Citizen Science. One of our goals is to apply ICT to **stimulate** and **support** public participation in environmental conservation. The work discussed here approaches this goal from **two** perspectives.

## Augmented Zoology app

We intend to **educate** the general public about endangered species in a **playful** and **engaging** manner and thereby **raise** environmental awareness.

Our "Augmented Zoology" app leverages Augmented Reality and game-elements to bring dead bones to life and thereby creates an **interactive learning experience** in an otherwise static museum exhibit. The experience also triggers **social interaction** and discussions among visitors.

The "Augmented Zoology" app supports visitors experiences in **UCL's Museum of Zoology** (Grant Museum). Developed on request from the Museum curator, the first experimental installation supports the visitors in understanding the real position of the eyes in an elephant's skull. The big hole in the skull often induces visitors to believe that the eyes of the living elephant were located inside it.

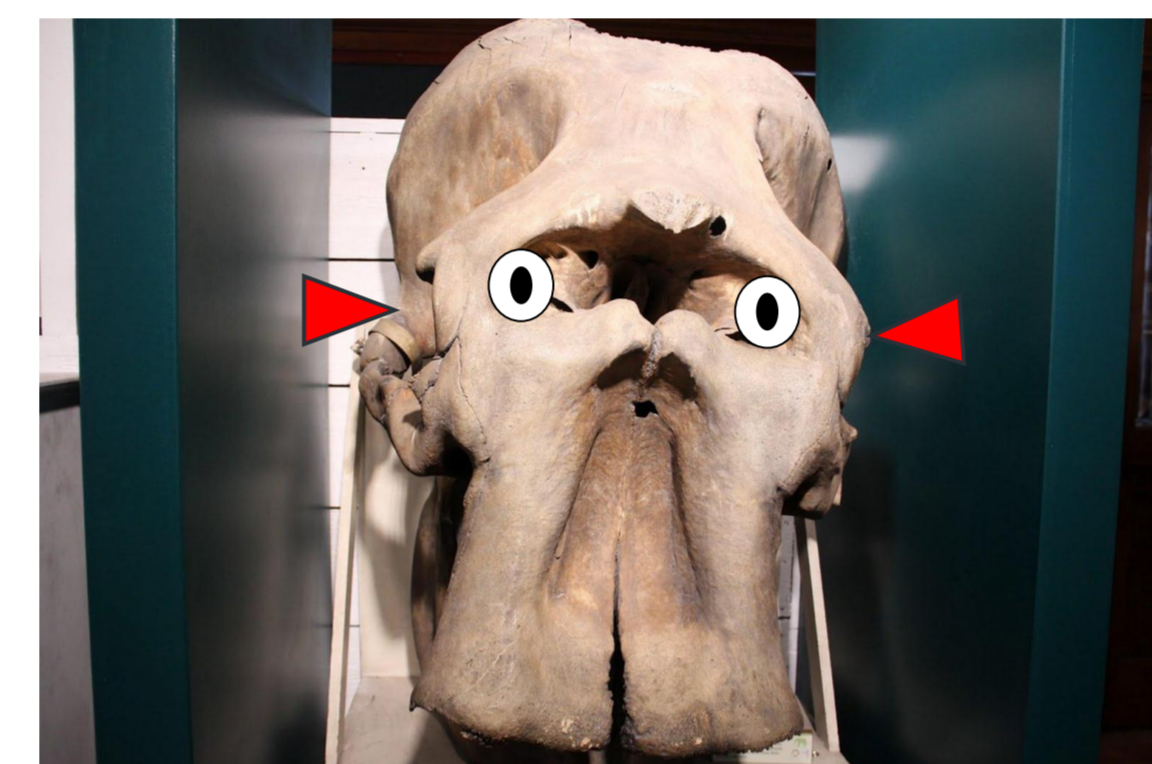


Virtual elements that interact with real ones have been created to leave a pivotal role to the real skull. It implied the reproduction of the real world in the virtual world through measurements on site and the **digital reconstruction** of the skull.

Two main screens in the Android app provide visitors the possibility to view the real position of eyes in a **playfull** way. A second screen overlaps an animated head over the skull for another **engaging and entertaining**.

experience. All this makes more interesting visiting a museum of bones and body remains. The use of mobile phones as devices allow visitors to share the experience and to interact. Other technologies like headphones or glasses limit engagement and **interaction**.

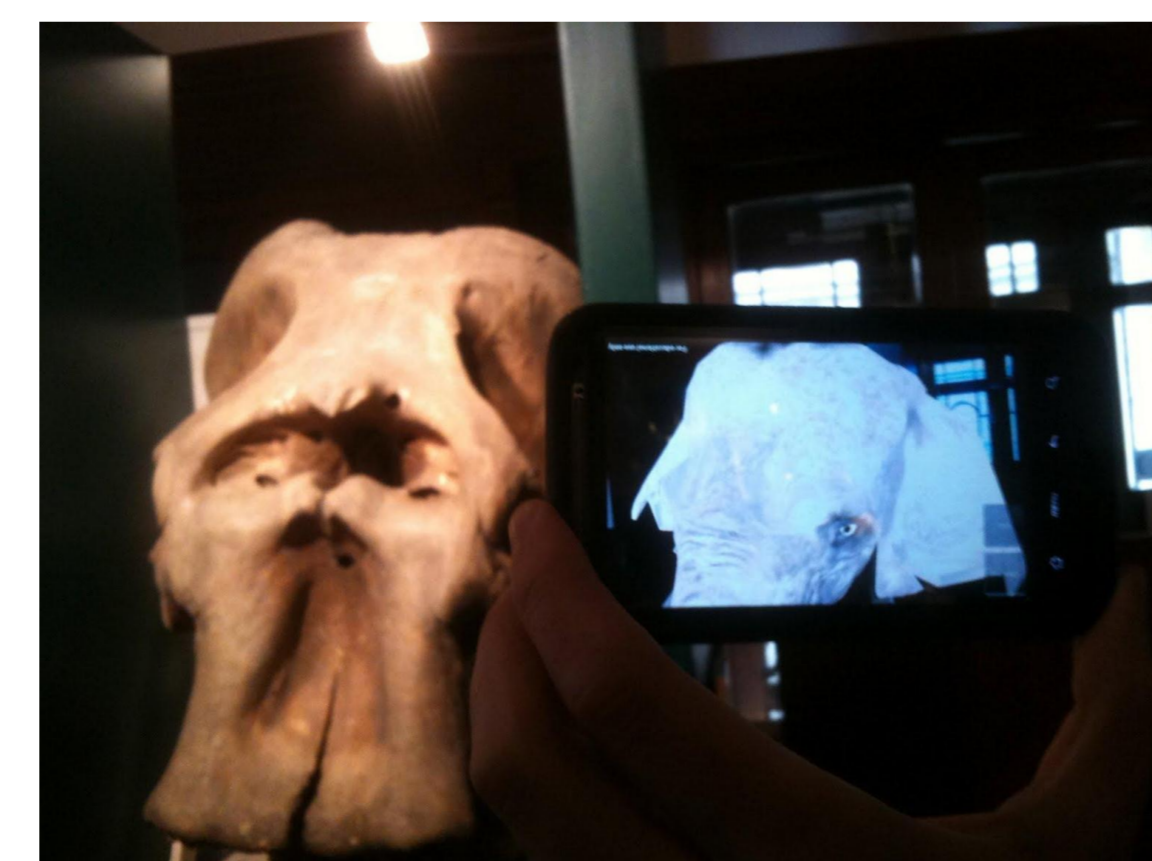
The link between the real and virtual world is provided by a couple of **"markers"** like the one on the left. They provide information also for visitors that have not downloaded the app.



Wrongly assumed eyes' position  
Real eyes' position



First screen, the virtual/augmented elements tightly interacting with real elements

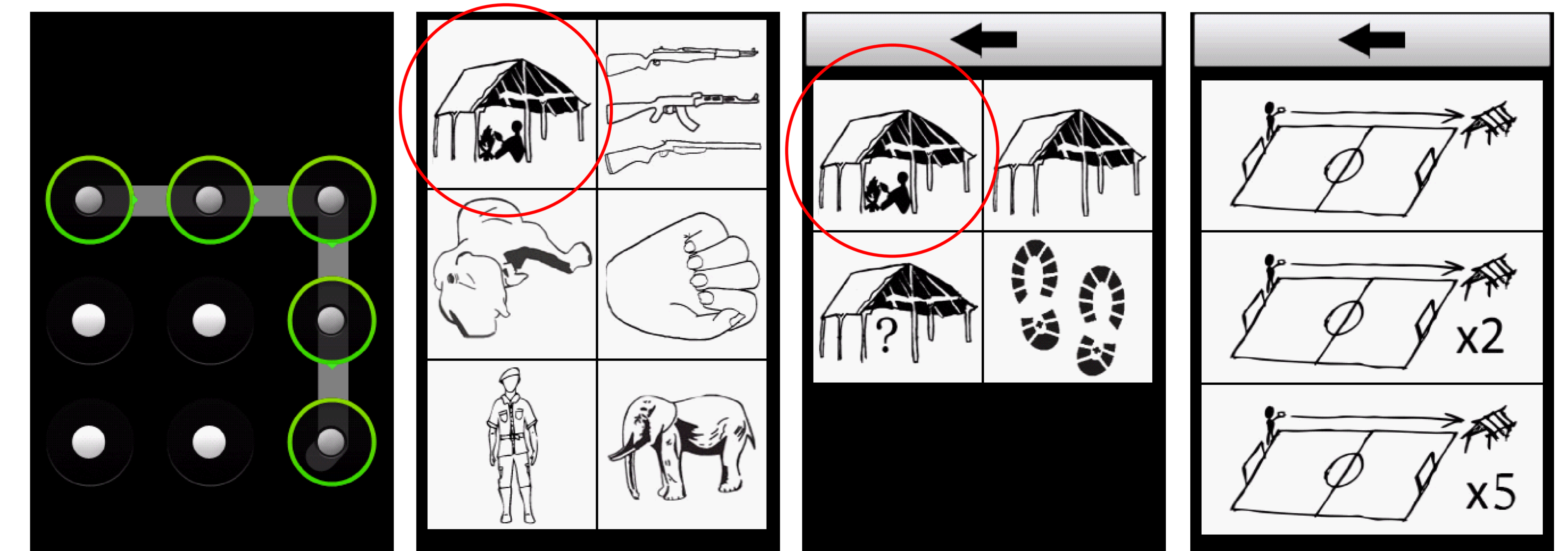


Second screen, the virtual and animated elephant head is superimposed to the real skull

## Anti-Poaching Data Collection app

Our second challenge is to provide **non-literate indigenous** people with a tool that **empowers** them to **take action** to protect their local environment and way of life. We focus on developing an application to be used with robust Android devices and allow Pygmy hunter-gatherers in Central Africa to **capture** points of resources, points of abuses, illegal poaching activities, capture audio stories and photos.

Our "Anti-Poaching" app is **co-designed** and currently being tested by Pygmy hunter-gatherers in the Congo rainforest. Via a decision tree of pictorial icons, representing various illegal activities, users can **record** and **geo-locate** incidents.



Pattern unlocking, users have to swipe a their **pattern** to unlock the device.

First Screen with 6 pictorial icons for the user to choose.

Screen for capturing Poacher's Activity

Distance in **"football pitches"** units away from the user.

