

## Introduction

Citizen science refers to an information transfer and collaboration process between scientists and the general public. Currently it is widely seen in diverse disciplines, and one of its prominent examples is an astronomy project named Galaxy Zoo. Recognizing the repetition and boredom of its task design, this research investigates the feasibility of gamification in the redesign of Galaxy Zoo.

## The Design of Galaxy Zoo

Galaxy Zoo has been a successful astronomy outsourced project since 2007. The project asked the public to classify galaxy images collected in the Sloan Digital Sky Survey due to the large data volume (Figure 1).

## Research Question

We anticipate that the incorporation of a familiar story will enhance user engagement more than incorporating a new but unfamiliar story.

## Method

- We modify research methods from a prior study done by Prestopnik and Crowston (2012).
- We use two narratives in our redesign prototypes: a new story *Lonely Woods* and a familiar old story *The Little Prince*.
- We adopt paper prototyping for usability testing.

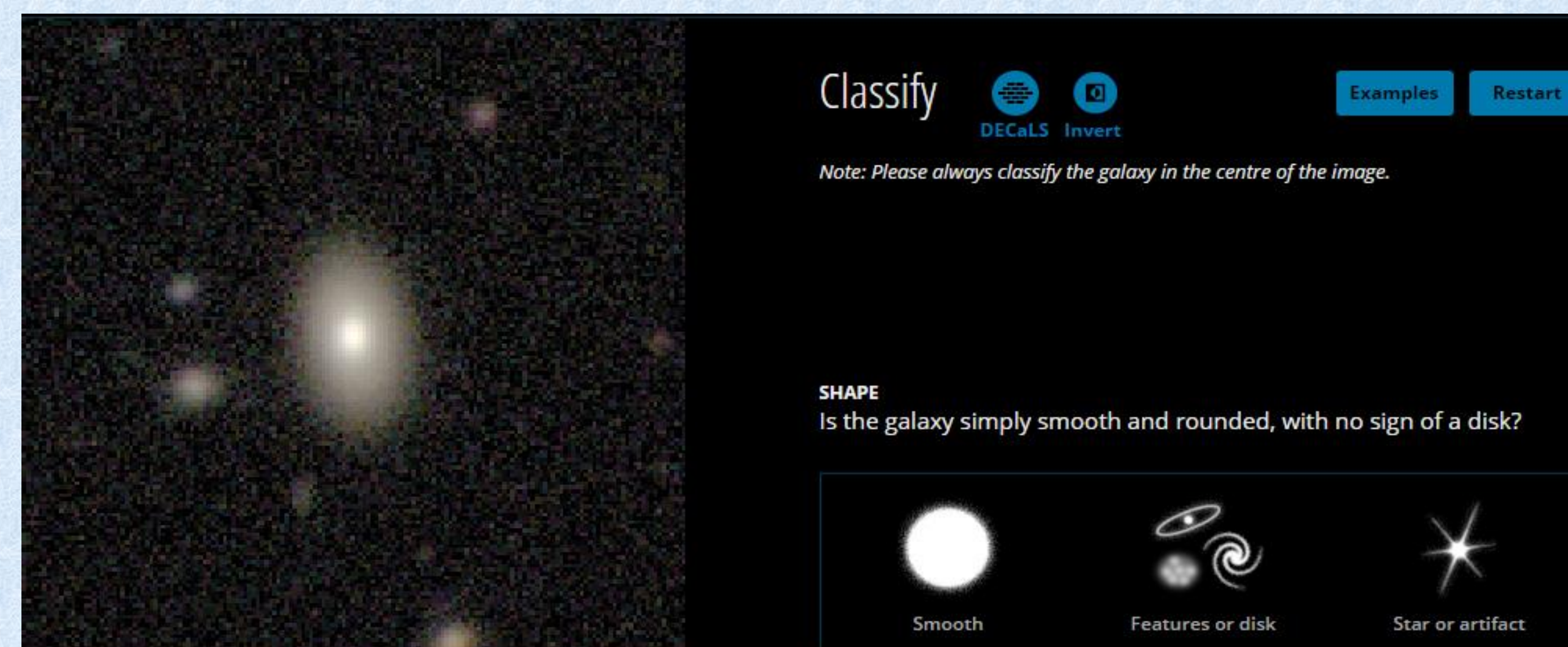


Figure 1. Classification in Galaxy Zoo (Reproduced from Galaxy Zoo)

## Selected Motivations of Citizen Scientists

Motivation	Description
Contribute	I am excited to contribute to original scientific research.
Learning	I find the site and forums helpful in learning about astronomy.
Discovery	I can look at galaxies that few people have seen before.
Fun	I had a lot of fun categorizing the galaxies.

Table 1. Categories of selected motivations (Adapted from Raddick et al., 2013)

## Forgotten Island

*Forgotten Island* is an example that adopts the adventure game to attract players to participate into a life science research project (Prestopnik and Crowston, 2012). Its game design applies both storyline and fantasy elements.



Figure 2. The game world of *Forgotten Island* (Reproduced from Citizen Sort)

## Prototypes

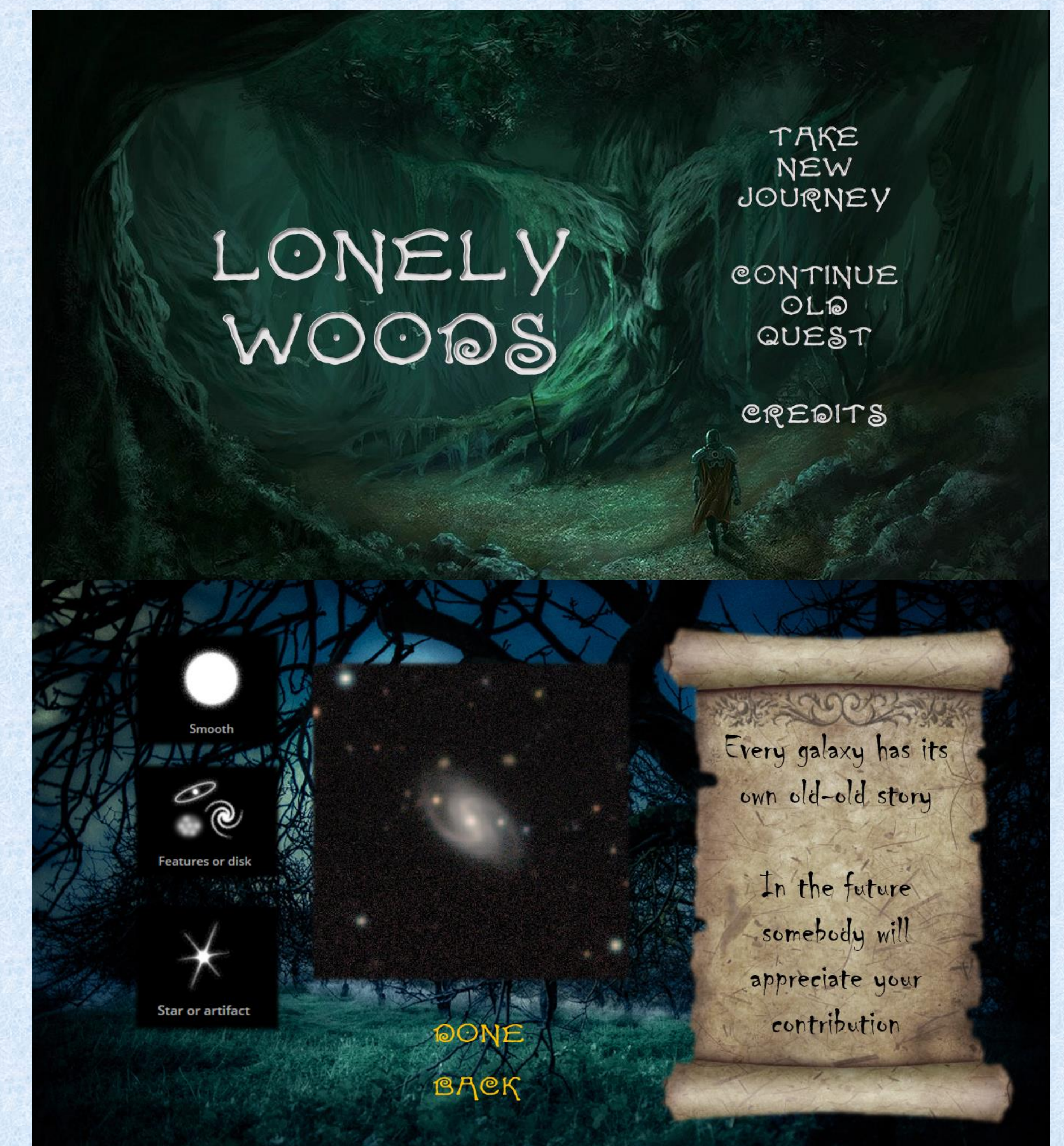


Figure 3. Mock up interfaces for *Lonely Woods*

## Next Steps

- Design mock-up gaming interface for *The Little Prince* prototype.
- Recruit users and do initial usability testing through paper prototyping.

## References

- Citizen Sort. (n.d.). Retrieved October 11, 2016., from <http://citizensort.org/web.php/forgottenisland>
- Galaxy Zoo. (n.d.). Retrieved October 11, 2016, from <https://www.galaxyzoo.org/#/classify>
- Prestopnik, N., & Crowston, K. (2012). Purposeful Gaming & Socio-Computational Systems: A Citizen Science Design Case. Paper presented at the ACM Group: International Conference on Supporting Group Work.
- Raddick, M. J., Bracey, G., Gay, P. L., Lintott, C. J., Cardamone, C., Murray, P., ... Vandenberg, J. (2013). Galaxy zoo: Motivations of citizen scientists. *Astronomy Education Review*, 12(1), 1–41.