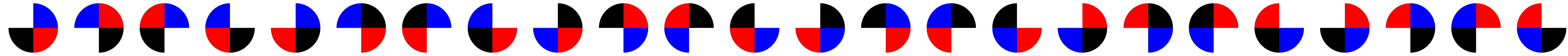


Color Targets

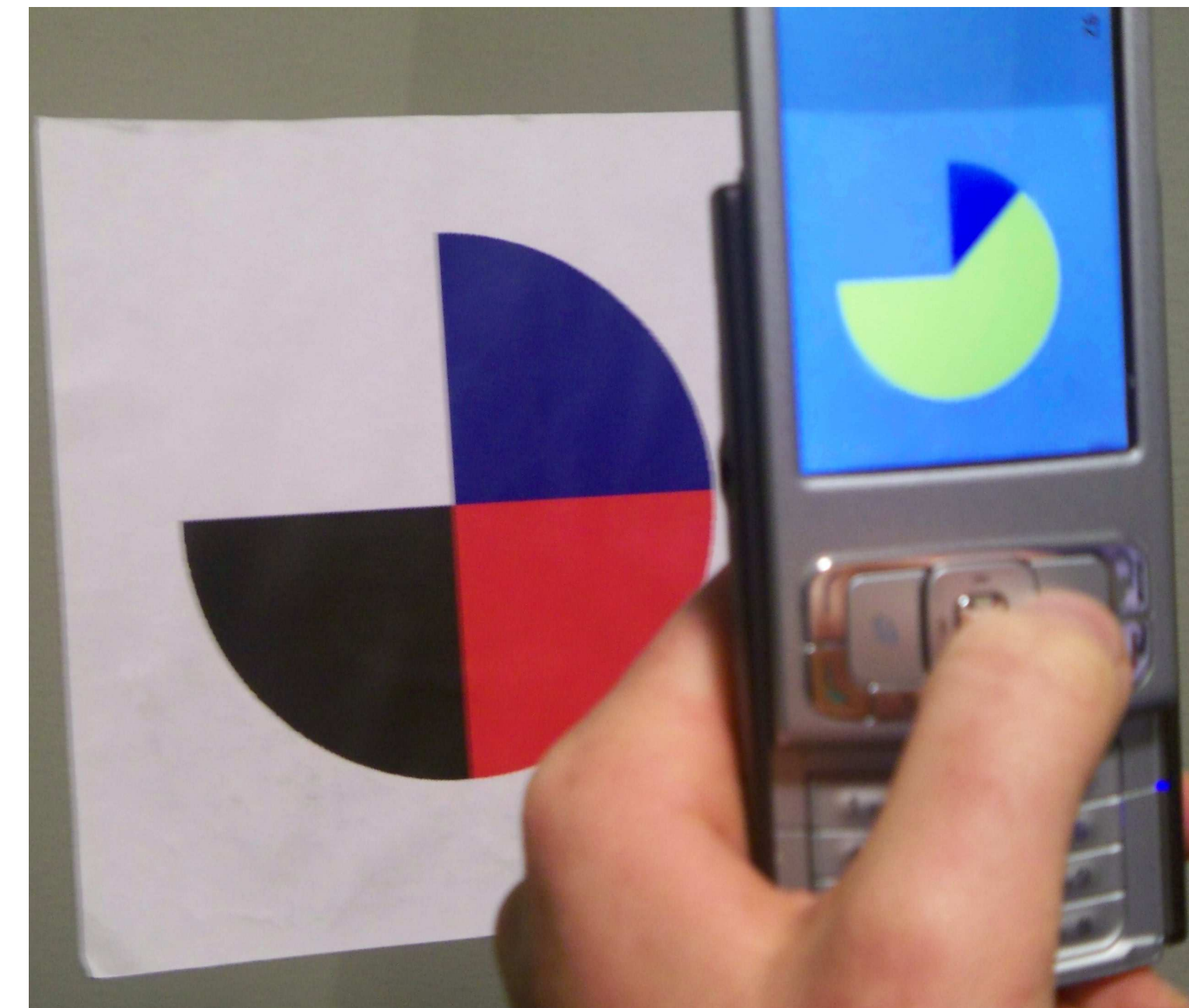
A Wayfinding System for the Visually Impaired

Max Velado
Advisor: Dr. Roberto Manduchi
Department of Computer Engineering, University of
California, Santa Cruz



Purpose

- Develop a wayfinding system for the visually impaired
- Implement in buildings to identify different locations
- Make it affordable
- Easy and natural to use

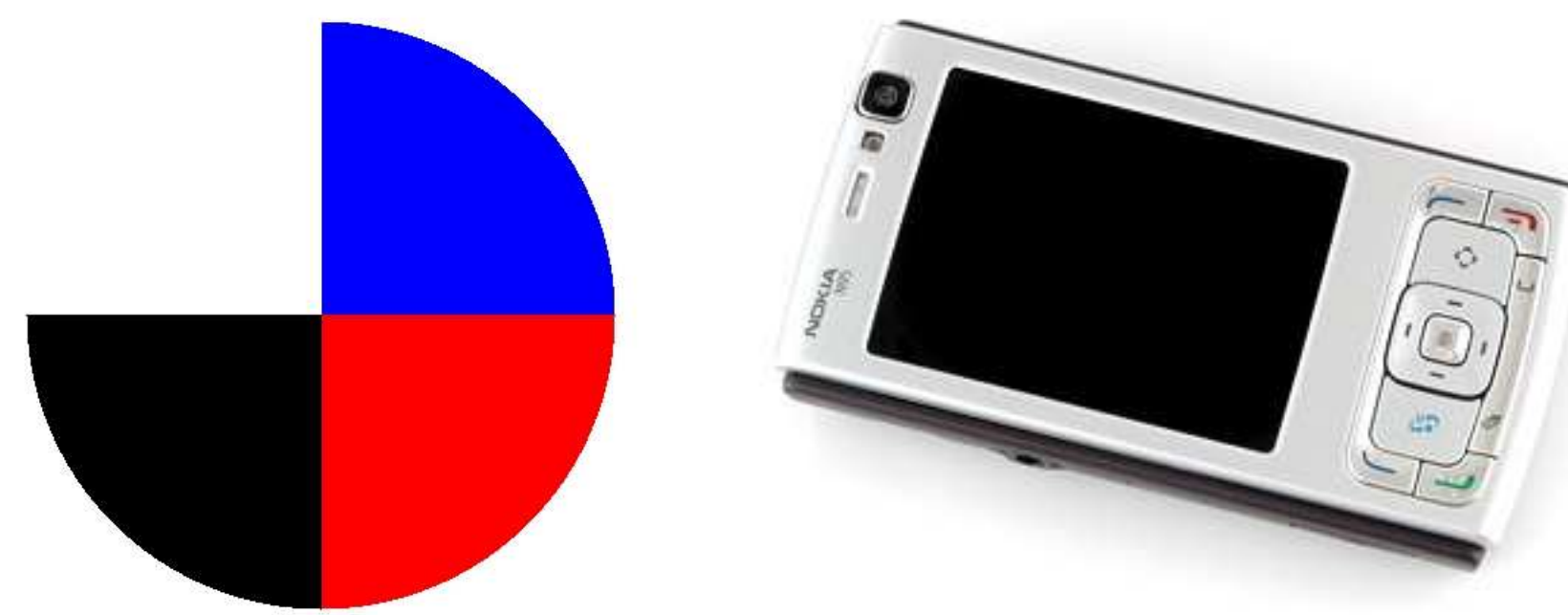


My Contribution

- Obtain 24 permutations from the four colors
- Applications
 - Implement within a building
 - Each permutation represents a different area or room
 - Cell phone recognizes and reads aloud the area detected
 - Can also be used as directions (e.g., turn right, left, etc.)

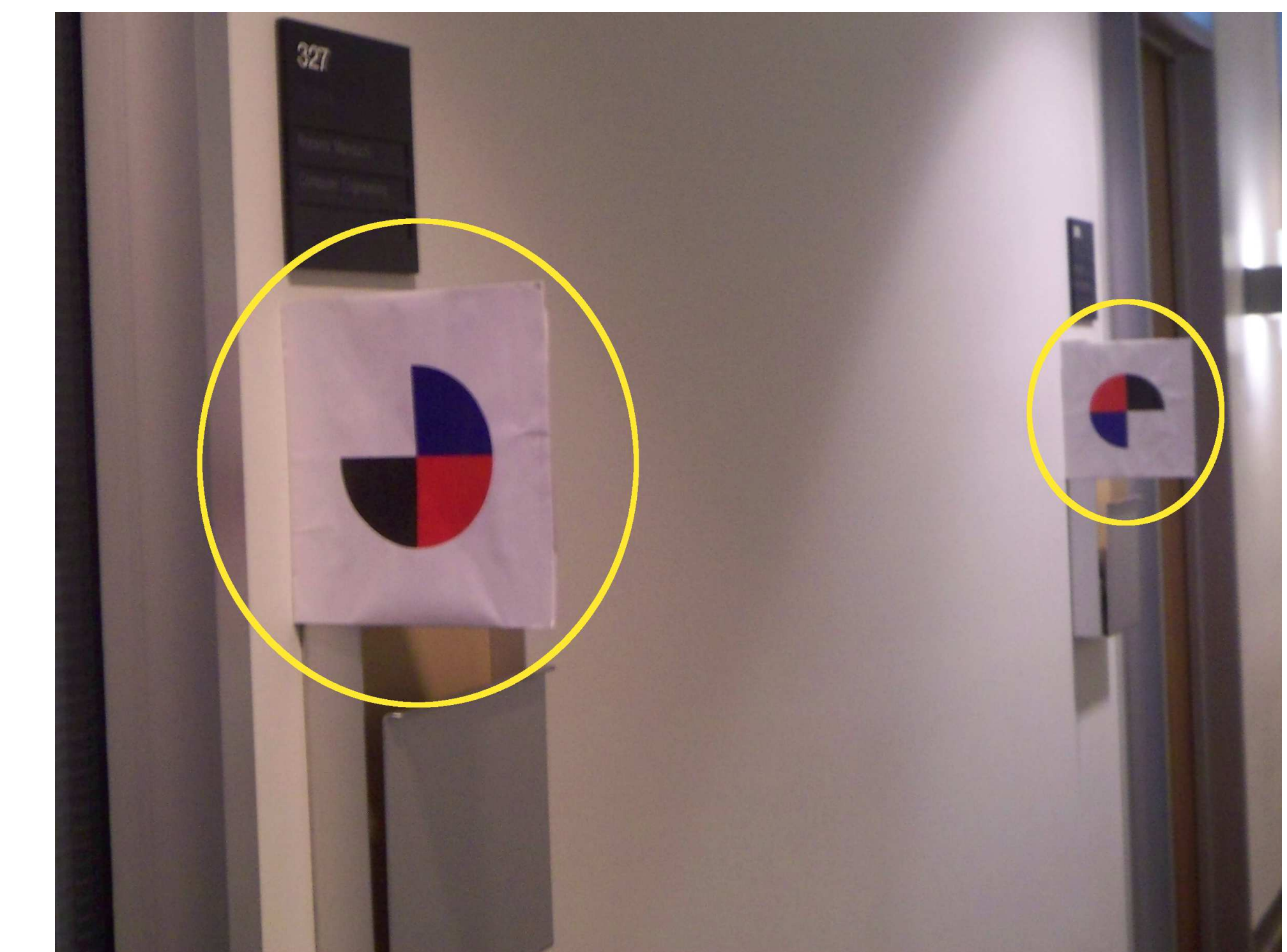
Devices

- A color target as a landmark symbol
- Cellphone



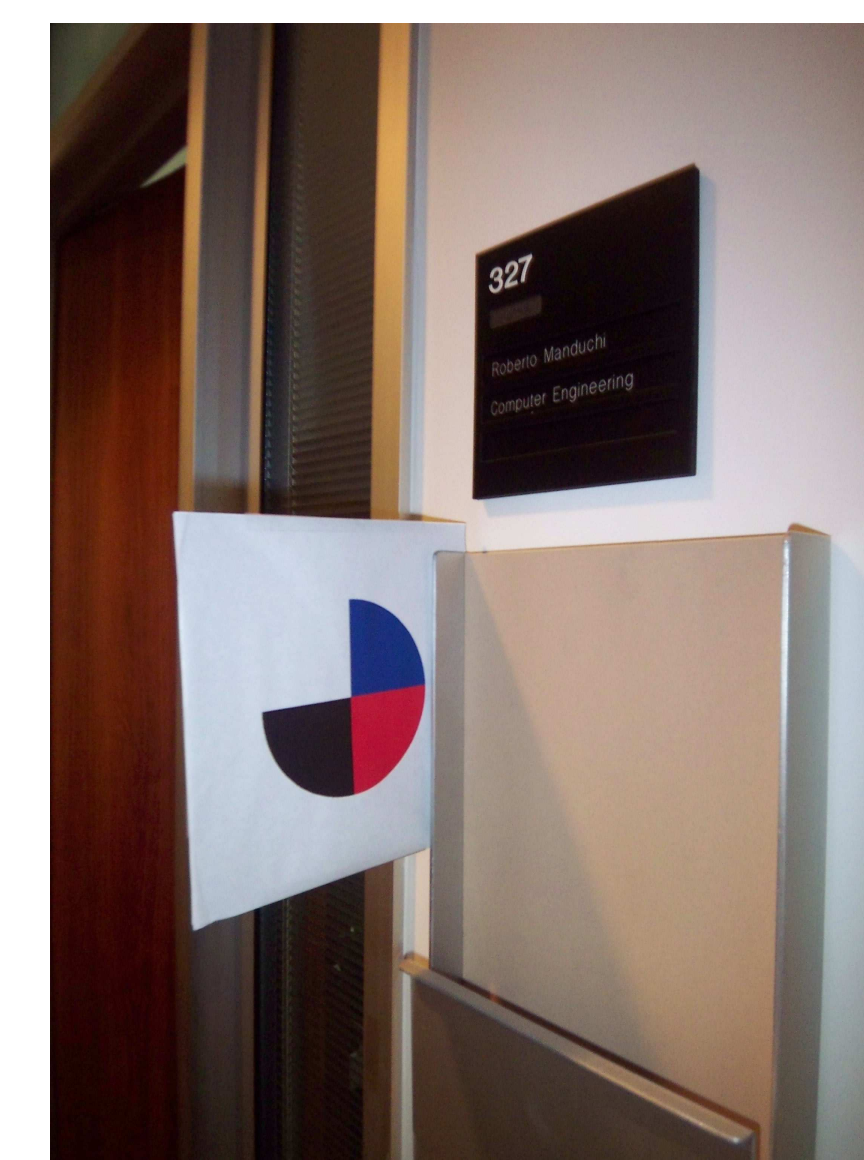
Why a cellphone?

- Affordable
- Portable
- Ubiquitous
- No stigma attached (everyone uses a cellphone)
- Quick in identifying color target



Choosing a color scheme

- Unique pattern rarely found within an environment
- Robust and invariant to environmental conditions (e.g., lighting)



Definitions

- Wayfinding: a method (visually or audibly) used by a person to identify a specific location or acquire directions
- Color target: landmark symbol detected by a cellphone to identify a specific location

Acknowledgements

- Dr. Robert Manduchi, Dr. Richard Hughey, Colt Hagen, SURF-IT program at UCSC, and the National Science Foundation.

References

- J. Coughlan and R. Manduchi. Color targets: fiducials to help visually impaired people find their way by camera phone. *EURASIP Journal on Image and Video Processing*, Dayton, OH, 2007.