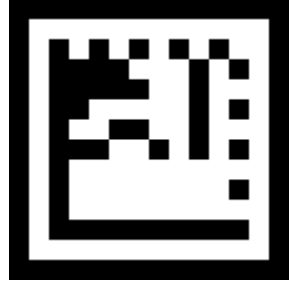


# Automatic 2D Barcode Location and Recognition

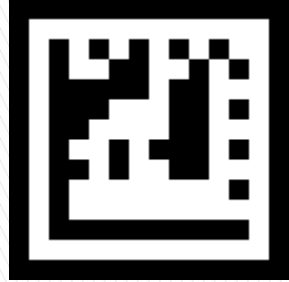
Patrick Martin and Jason Scott

# Project Goals



- ▶ Locating Barcodes in Images
- ▶ Extract Barcode Data from Images
- ▶ Parse Extracted Barcode Data

# Locating the Barcode



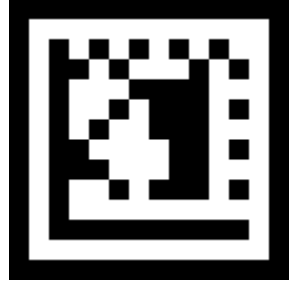
- ▶ Find Unique Feature
- ▶ Generate Feature Vectors
- ▶ Locating Barcode Corners
- ▶ Choosing Corner Points
- ▶ Bounding Square
- ▶ Thinness Ratio
- ▶ Aspect Ratio
- ▶ Euler Number
- ▶ Features from Accelerated Segment Test
- ▶ Group Connected Points and Find Largest Area



# What is Features from Accelerated Segment Test?

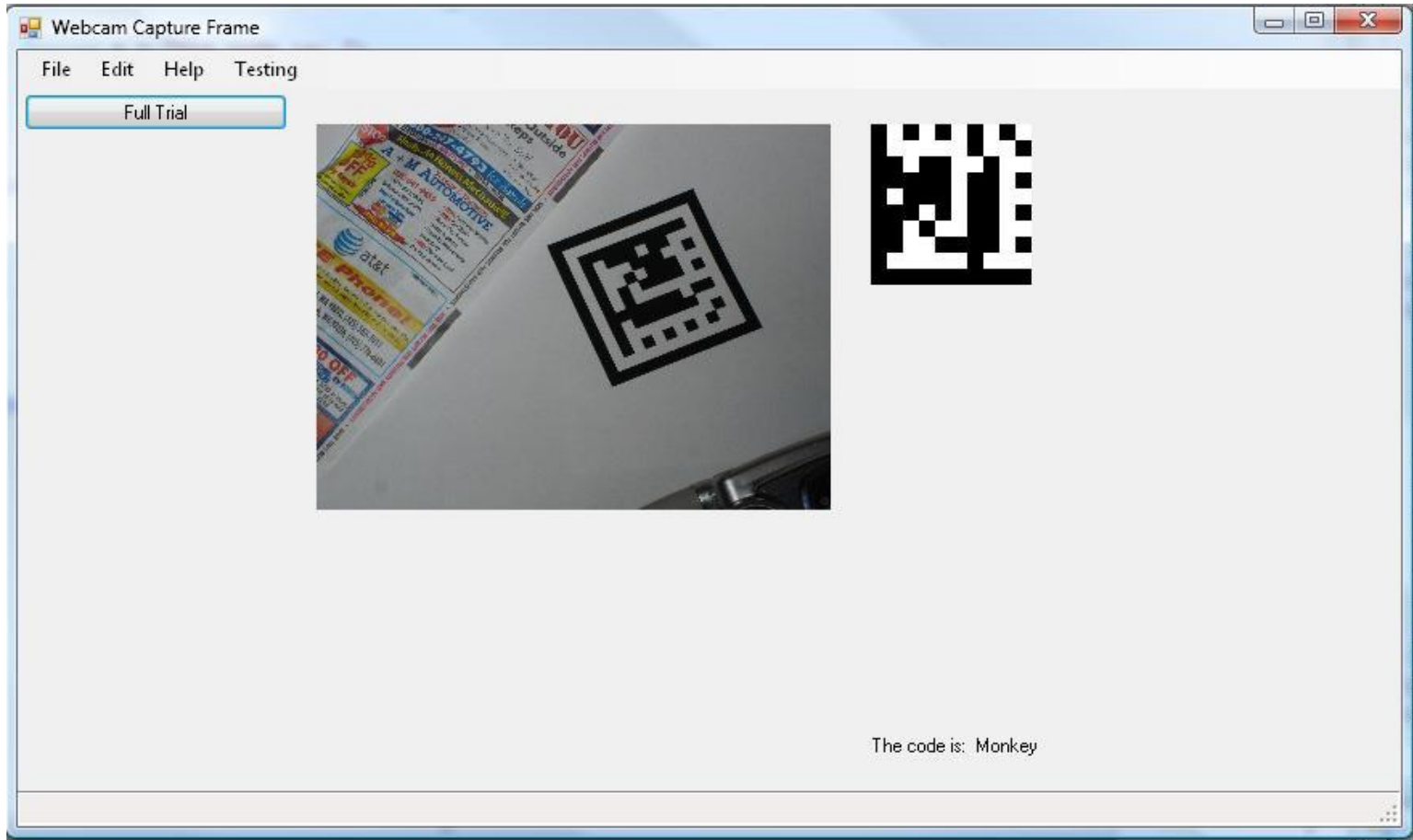
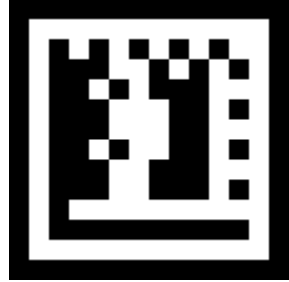
- ▶ Corner Detection Algorithm
- ▶ Uses Midpoint Circle Algorithm
  - Aka. The Ghali Algorithm
- ▶ Inspect Pixels in a Radius
- ▶ Use Gradient to Measure Corner Intensity
  - We use it on a black and white image

# Extracting Barcode Data



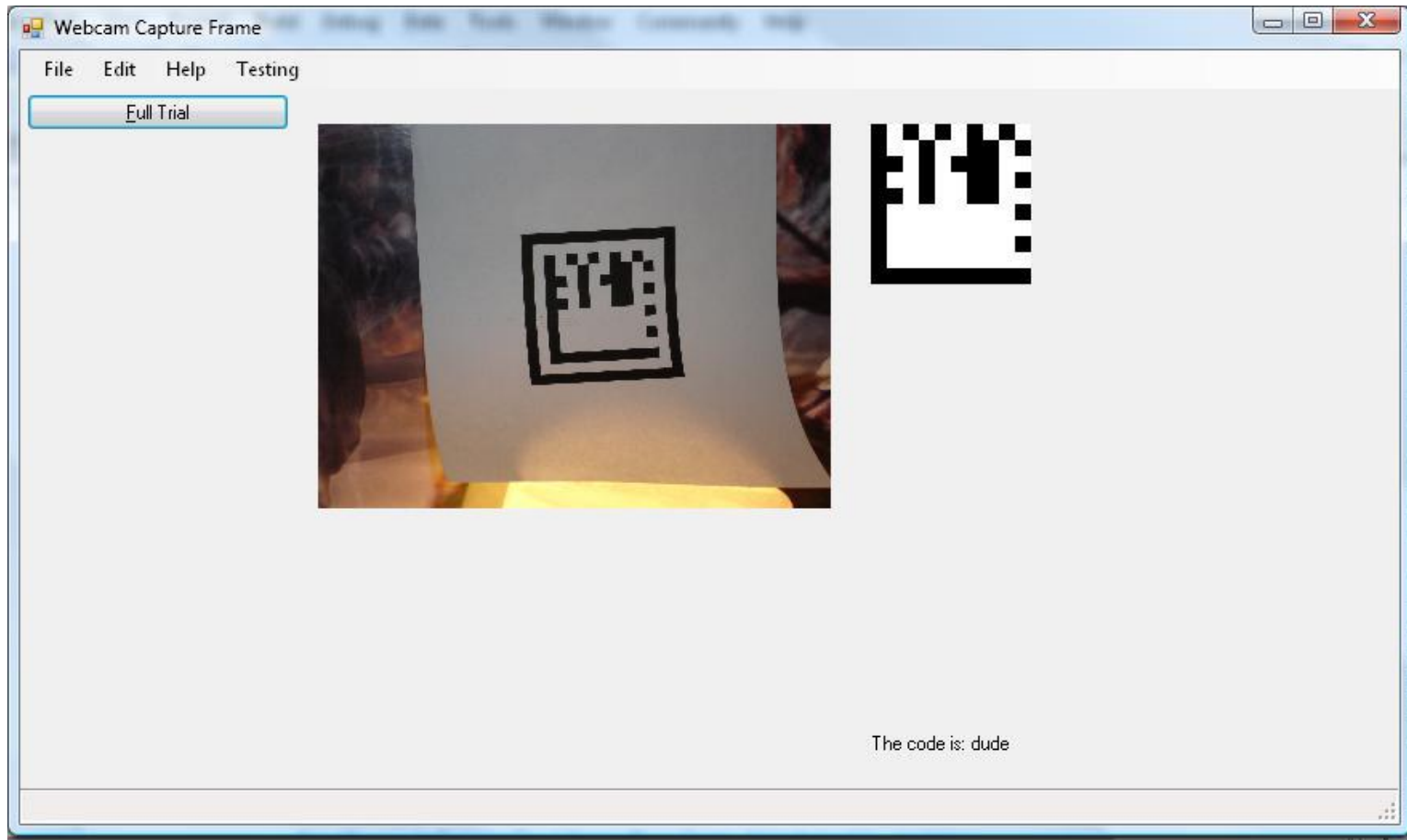
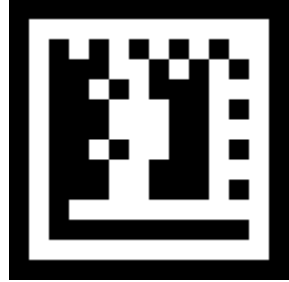
- ▶ Use Corners to Seed Algorithm
- ▶ Step in  $5/28$  ( $2.5/14$ ) Along Diagonals
- ▶ Generate Grid
- ▶ Rotate Clear Corner to Upper Right
- ▶ Bilinear Interpolation Through Barcode

# Example Test (Success)



The code is: Monkey

# Example Test (Success)



# Example Test (Failure)

