Remote Diagnostic Camera

Overview
In a printer, the diagnostics capability of the machine is limited by the number of sensors that come with the machine. While there is a lot that can be diagnosed with a limited number of sensors, more sensors would make it even better. However, it would be too expensive to mount more sensors everywhere in the machine for all possible situations. The goal of this project is to develop a feasible solution that will eliminate the need for excess sensors, thus reducing the cost. Previous teams designed an android application that controls a wireless camera in order to take pictures and videos to help identify issues in the printing process. We implemented object detection and image analysis capabilities. We also improved upon current features of the application.

Objectives
Our goal was to implement object detection and image analysis capabilities to detect paper drifting by monitoring variations of fixed objects in printed images.

Approach
• Visited Xerox facilities in Webster, New York to get an overview of the project and collect wireless camera, small printer and Android tablet.
• Discussed achievable project goals with the sponsor.
• Conducted weekly meeting with Xerox to update on progress accomplished on the previous week.
  □ Conducted weekly team meeting to discuss current status of the project and assign weekly tasks.
• Created teams of 2 to 3 people and divided the project responsibilities according to skills required and complexity.
• Integrated results of each sub-team to main application.
• Tested object recognition feature with images composed of simple shapes.
• Tested image analysis and new plotting feature with set of images provided by Xerox.
• Fixed minor bugs from original version of the application
Outcomes
We were able to develop and integrate the requested features to the android applications. We also fixed minor bugs that caused the app to malfunction.

Object detection and image analysis capabilities were implemented. Also, we improved upon plotting features developed by prior teams.