Mobile Device Camera Connector (Tabiscope)

Daniel Ahn, Deepak Lingam, and Kyle Wong
Mentors: Dr. Amit Kochhar, Kevin Olds
Project Overview

- **Design a low cost endoscopic adapter**
  - Needed for third world use where costs are major issues
  - Useful in emergency situations
  - Allows for rapid image sharing when doctors are not on site

- **Create a system for Android devices**
  - Current solutions only work with iPhones
Deliverables

Minimum:
- Adapter for a Specific Tablet for Endoscope (Done)
- Android app: Being able to view images using the tablet’s camera (Done)

Expected:
- Updated Adapter that allows users to adjust tablet position (In Progress)
- Android app: GUI / label images (patient identifier) (In Progress)
- Automatically detecting image circle and maximizing to screen size (In Progress)
Max Deliverables

- Android application: upload and secure viewing of patient endoscopy images
- Real-time image processing method to prevent specular reflection
Minimum Deliverables: Camera Adapter

- Adapter for a Specific Tablet for Endoscope (Done)
- Android app: Being able to view images using the tablet’s camera (Done)
Minimum Deliverable: Camera Adapter
Expected Deliverables: Camera Adapter

- Updated Adapter that allows users to adjust tablet position (In Progress)
- Android app: GUI / label images (patient identifier) (In Progress)
- Automatically detecting image circle and maximizing to screen size (In Progress)
Expected Deliverable: Camera Adapter
Minimum Deliverables: App. (Camera Control and GUI)

- Adapter for a Specific Camera for Endoscope *(Almost Done)*
- Android app: Being able to view images using the tablet’s camera *(Done)*
Minimum Deliverables: App. (Camera Control and GUI)
Expected Deliverables: App. (GUI)

Expected:

- Updated Adapter that allows users to adjust tablet position (In Progress)
- Android app: GUI / label images (patient identifier) (In Progress)
- Automatically detecting image circle and maximizing to screen size
Expected Deliverables: App. (GUI)
Expected Deliverables: App. (GUI)
Expected Deliverables: App. (Camera Control)

Expected:

- Updated Adapter that allows users to adjust tablet position *(In Progress)*
- Android app: GUI / label images (patient identifier) *(In Progress)*
- **Automatically detecting image circle and maximizing to screen size** *(In Progress)*
Expected Deliverables: App. (Camera Control)

Live Demo
www.webmd.com
GERD (gastroesophageal reflux disease)
Expected Deliverables: App. (Camera Control)

● Circle Detection (Done)
● Zoom on ROI (In Progress)
  ○ Zoom on a ROI is NOT computationally trivial
    ■ Two separate streams necessary
      ● Low-sampled stream for preview screen
      ● High-sampled stream for stored images/videos
Project 7: Tabiscope (Daniel Ahn, Deepak Lingam, Kyle Wong)
Summary

- Set to meet expected deliverables by the deadline
- Unlikely to complete maximum deliverables
Questions and Feedback?