Capture Images Tool

This is an application, which allows users to capture images from multiple web cameras automatically by the use of just few key strokes. The system by default displays a window with the default camera (camera 0) and the user will be able to toggle through all other cameras to previews images.

System Summary

This section outlines the basic information of the application, and the hardware / software requirements.

- Name: `webcamCapture.exe`
- Description: `Image Capturing Tool`
- Format: `Executable (.exe)`
- Version: `1.0`
- Language: `Python 2`

Minimum Hardware Requirement

- CPU : `1 GHz`
- RAM : `1 GB`
- Free disk space: `> 100 MB`

Webcams Supported

- The tool supports all kinds of webcams (you can mix and match them)
- Maximum number supported: `10 webcams`

Minimum Software Requirement

- Operating System: `Windows XP or later versions`
- Other packages required: `No`

Installing and Opening the Application

- First, unzip the zip file `webcamCapture.zip`.
- Get into the folder and double-click `webcamCapture.exe`. Then the system will opened.
- To make sure that the system works correctly, please do NOT remove or change ANY file in the folder.

Previewing Cameras

Please note that when the application launches, there are two windows: the dos command window and a window showing the preview of the first camera. Please ensure all these windows remain opened whiles you capture the cassava images.

- **To preview other cameras:**
    - Ensure the preview window is active.
    - Press the **"n"** key on the keyboard. This switches preview to the next available camera.

- When the last camera is reached, the system automatically moves to the first camera.

Saving Images from all Cameras

Please note that the saving functionality in this tools, automatically saves all images from identified cameras. To save the images:

- Press the **"s"** key, whiles the preview window is still active.
- The output of the images from all cameras will be saved to the folder `"captured_images"`.
- Separate folders will be created for each camera (camera0, camera1, etc.).
- Images saved into these folders will have same filenames. For example, if there are three cameras, then in the first capture the following files will be saved:
  - `captured_images/camera0/1.png`
  - `captured_images/camera1/1.png`
  - `captured_images/camera2/1.png`
- The format of image are in `png` for the lower level of compression.
- Please ensure that images are properly in view of all cameras before pressing the **"s"** key and that the preview window is active.
- When images are saved successfully there is a confirmation of this in the command window.
- Currently the tool do not support selective saving of images from individual cameras.

Exiting the Application

- Please press the "Esc" Key from you keyboard

Other Information

This section provides some basic guide on how to use your webcam to capture cassava image. Please note that additional information will be provider later when we start capturing cassava image for 3D reconstruction.

Ensure all other cameras attached to your computer are disabled before starting to use your webcams with the application.

- Mount the USB cameras to the tripods
- Connect the USB Hub to the computer.
- Plug in all the USB webcams to the USB ports of the HUB and switch them on.
- Since you are currently using a single camera, please move the camera around and take images of the same cassava from different views.
  - Please note:
    - Do not move the cassava
    - Only move the camera and the black background around to get various views of the same cassava
    - Once all views have been captured, move the camera folders to a different directory and rename them by appending a unique identifier that can

identify each plant. For example: the folder `camera0` becomes `camera0_60444, etc.`

- Camera should remain on tripod at all times to ensure the camera do not shake whiles capturing cassava images.
- Fill all frames with the cassava images as possible, whiles ensuring the background is always black. (you can do this by moving the camera closer to the cassava)
- Since camera has no flash take images during the day and provide more lighting as required.
    - If you are using a light source ensure this do not cast too much shadows.
- Ensure there are no other objects in the background apart from the black background.

Tripod

7 port USB Hub

WebCam