Extracting frames using moviereader.m

The movie that was captured with the cell phone contains probably upwards of 10k to 20k frames in it. Not all of those are necessary to analyze the displacement data (indeed, it would be excessive and extraneous). If you already have a favorite method or program to extract frames from a movie file, you may use that. Otherwise, you may use the moviereader.m file written for MATLAB provided to you. Here are some brief instructions.

Note: Important for linking the data collection rate to the frame rate of your extracted frames will be to know, within good approximation, the time of any frame with respect to the start of the experiment. To make this easier, it is suggested that you crop out all frames of the movie before Xiangyu says *Start*.

1. Download the moviereader.m file and the movie you wish to extract frames from into a folder and open the m-file in MATLAB.
2. In the program editor, you may experiment with the frequency value (line 2) to see its effects on the final number of data points you plot in your stress-strain curve. How many frames is enough to visualize the curve? The frequency indicates the interval between movie frames that the program extracts a frame (*e.g.*, 1000 indicates the program will extract 1 frame for every 1000 movie frames).
3. Change the file name to the name of your movie file in line 3.
4. Run the moviereader.m program. Note: a Figure 1 window will appear in which you may crop the image to the gage area. Remember to leave a bit of room on the top for the deformation. Once you have drawn your crop box, double click on the image.
5. A gif will be automatically saved to the folder containing your program and movie files.
6. Finally, to determine the time between your frames, you may query MATLAB for the duration of the movie using:

>> v.Duration

The answer will be the duration of your movie in seconds. Once you determine the number of frames in your gif file, the time between frames will be the duration of the movie divided by the number of frames minus 1:

Δtframe = movie duration / (# gif frames – 1)