

# **Team 2nd Assignment**



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**MCEN 4151: Flow Visualization**

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## **1. Introduction:**

This is a description of the image that I submitted for the 2<sup>nd</sup> group project. I worked with Wangyang Wang on the same project. The content of the image is liquid vapor being poured into a desk surface. The purpose of the image is for us to visualize liquid vapor generated by an electrical cigarette.

## **2. Flow apparatus:**

The set up includes a 3.8V electrical cigarette, electrical cigarette liquid, a glass, and a lamp. I collected the vapor that is generated by the e-cig in the glass. Then the liquid vapor is poured into the desk surface at the height of 10cm. The lighting that I used was just my desk lamp which uses a LED bulb. I shined the light from the up left corner of the image to the flowing vapor to get maximum effect.

## **4. Photographic technique:**

For this image I used my Canon EOS 60D DSLR camera with a Canon 10-18mm wide-angle lens. To get a clear and sharp image of the vapor's motion, I set up the exposure as 1/30 sec at f/1.8. I set up the ISO to 400 since the lamp light source is very efficient. I was holding the camera in my hands and the distance from my lens to the vapor was 15 inches. The focal length is 17mm. The field of view is 66 degrees horizontal, 47 degrees vertical. The dimension of the original image is 5184 x 3456. I used Photoshop as my photo editor. The original image was a little blurry so I changed the picture to black and white so that the blurriness is much less noticeable. The other thing that I did is that I cropped the image to 5045 x 3251 so that the image is more focusing on the vapor.



Original image



Final image

## 5. Conclusion:

The image successfully visualized the motion of the liquid vapor. Note that the e-cigarette liquid results in a much clearer image than water vapor. This is because the e-cigarette liquid is more viscous than water. What I'm happy about the image is that it's a clear capture of the fluid's motion. What I don't like about the image is the reflection of

the lighting that I used on the up left corner of the image. If I'm going to improve this image I would choose a white card board as my background.