


Writing Mobile Apps for Investigative Study of Physics

Assignment: Implementation of Mobile Apps for Investigative Study

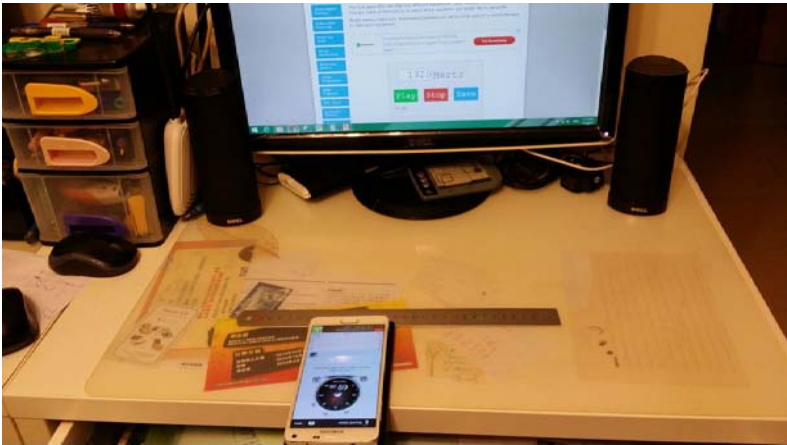
Name	Event	Date
CHOI Yuk-shing		

Target group	F.5 Physics students
Objective	To do a mini research on the interference of sound: <ul style="list-style-type: none">- To study the effect of frequency on the interference pattern of sound,- To measure the speed of sound in air,- To investigate the factors affecting the speed of sound in air
Mobile Apps	Sound meter https://play.google.com/store/apps/details?id=kr.sira.sound&hl=zh_TW 

Description of how to use the Mobile Apps for investigative study of Physics or Science subjects

A. Study the effect of frequency on the interference pattern of sound

1. Use pc and loudspeakers to produce an interference pattern as shown.



2. Use online tone generator to generate a pure note from the speakers.
<http://onlinetonegenerator.com/>
3. Move the mobile phone across in front of the loudspeakers. Observe the change of intensity level.
4. Vary the frequency.
5. Describe the change of interference pattern.

B. Measure the speed of sound in air

1. Measure the path difference and find the wavelength of sound.
2. Read the frequency of sound from the PC screen.
3. Measure the speed of sound in air.

C. Investigate the factors affecting the speed of sound in air

1. Make a hypothesis on the factors (e.g. temperature) affecting the speed of sound in air.
2. Do an experiment to test for the hypothesis.
3. Try to explain your findings by physics principles.

Expected learning outcomes

- After the investigation, students should be able to
- describe how the interference pattern sound waves be affected by the frequency of sound
 - measure the speed of sound in air using interference pattern of sound
 - find out (with explanation) some factors (e.g. temperature, humidity and air pressure) affecting the speed of sound in air

Expected difficulties

- Students may face technical difficulties in the investigation (e.g. the environment of their homes may not be suitable for the investigation)
- The physics principles related to the speed of sound may be too difficult to the students.
- Students may find difficult to vary the factors affecting the speed of sound in air.
 - Temperature (hint: may use of air conditioner)
 - humidity (hint: using dehumidifier)
 - air pressure (hint: do it **patiently** on several days with different air pressure)