

# ITSP 2015

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## Aim

To setup an experimental demonstration of Cymatics

## Motivation

- To demonstrate the effects of sound ( its wave character ) on objects
- To introduce this new concept of Cymatics, which relates music with Physics in an entertainment based manner ( Cymatics is the study of visible sound co vibration, a subset of modal phenomena. Typically the surface of a plate, diaphragm, or membrane is vibrated, and regions of maximum and minimum displacement are made visible in a thin coating of particles, paste, or liquid. Source:Wikipedia )
- To recreate vintage experiments like Rubens tube, Chladni Plate

## Project

- Ruben's Tube
- Chladni Plate
- Water based demos ( 2 of them )

## Applications

- Demonstrations to students to encourage students to apply Physics concepts to real life to produce such amazing phenomenon
- To study the Physics behind it as a supplement to the study of sound waves
- As a ready entertainer for general crowds in MI and TF

## Feasibility

- Music required generated by keyboard ( and mic and speakers for amplification )
- Ruben's tube: Metal tube, gas easily available, perforations and lighting fire can be done.
- Chladni plate: metal plate easily available, freely movable ( up and down ) can be achieved via spring system.
- Water based demos: speaker ( large and small ), rubber hose, 24 hz sine wave generator – all are available

## Estimated costs

- Ruben's tube apparatus: Rs 7000
- Water based experiments: Rs 3000
- Chladni's plate experiment: Rs. 2000
- Transportation and Miscellaneous: Rs. 1000

## References

- <http://www.facebook.com/l.php?u=http%3A%2F%2Fwww.instructables.com%2Fid%2FThe-Rubens--Tube%253a-Soundwaves-in-Fire!%2Fstep5%2FMaterials-and-Tools%2F&h=nAQHmJwNg>
- <https://www.facebook.com/l.php?u=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DQ3oItpVa9fs&h=LAQHoLEJC>
- [www.youtube.com/watch?v=vvJAgUBF4w](http://www.youtube.com/watch?v=vvJAgUBF4w)
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