IOT BASED NOISE POLLUTION MONITORING

A project report submitted in partial fulfilment

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Computer Science Engineering

By

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PHASE 1: PROBLEM DEFINITION AND DESIGN THINKING

* PROBLEM STATEMENT
* DESIGN THINKING

Noise pollution: Causes, effects and control measures Sound is main means of communication in many animals, including humans. A low sound is pleasant and harmless. A loud, unpleasant or unwanted sound is called as noise. A given sound can appear music to some and noise to others. It depends upon loudness, duration and mood of a person. Noise (La. nausea=seasickness) is physical form of pollution. It is not harmful to air, soil and water but affects the animals including humans. Noise is unwanted sound, that is unpleasant, loud and disruptive. Humans have a hearing range called as audible range. Audible range depends upon frequency and loudness of sound. For a person with normal hearing, frequency ranges from 20 to 20,000 Hz and loudness ranges from 0 to 120 dB. Sound is measured in decibels (dB). A decibel value above 80 is considered to be noise pollution. Sources of Noise Pollution

1. Industrialization: Most of the industries use big machines which are capable of producing noise. Apart from that, various equipment’s like compressors, generators, exhaust fans, grinding mills also participate in producing noise.

2.Poor Urban Planning: In most of the developing countries, poor urban planning also play a vital role. Congested houses, large families sharing small space, parking lots, street noise, honking, commercial zone leads to noise pollution which disrupts the environment of society.

3. Social Events: Noise is at its peak in most of the social events. Whether it is marriage, parties, pub, disc or place of worship, people normally defy rules set by the local administration and create nuisance in the area. People play songs on full volume and dance till midnight which makes the condition of people living nearby pretty worse.

4. Transportation: Large number of vehicles on roads, aero planes, trains produce heavy noise. The high noise leads to a situation wherein a normal person lose the ability to hear properly

5. Construction Activities: Construction activities like mining, construction of bridges, dams, buildings, stations, roads, flyovers take place in almost every part of the world. These construction activities have to be continued to meet the demand of ever increasing Population. It also creates noise pollution.

Design Thinking

Design thinking was used to discuss the topic of Noise pollution. An image and audio was sent as a pre-cap and children were asked to see it before the session. The children were guided through various stages of design thinking i.e., empathize, define, ideate, prototype and test. The children were encouraged to talk and share their feelings in the empathize stage. In the define stage, the children were made to understand what the problem is, by questioning them and building on their responses.  In the ideate stage the children came up with various solutions to curb noise pollution. The fourth stage was the most exciting as children had to create their prototype to reduce noise pollution. Students experienced harsh and soothing sounds and learnt to differentiate between them.To reinforce the same,shakers with rice and pebbles were made. The children came up with creative solutions like use of ear plugs, lowering the volume, planting more trees,no honking and no loudspeakers. They depicted the soothing sound and harsh sounds using clay and through drawing. The session livened up with children’s creativity , enthusiasm and eagerness to share their ideas.

The session ended with a video showcasing various means to reduce noise pollution

