Name: Dharmit Sathvara

Roll no: 150096725080

Btech CSE 2025-2029

Subject: Scratch Programming

Volcanic Eruption

Introduction to case study

“This project simulates a volcanic eruption using Scratch. It visually demonstrates how magma builds up, pressure increases, and lava, smoke, and gases are released during an eruption.”

Case study flow

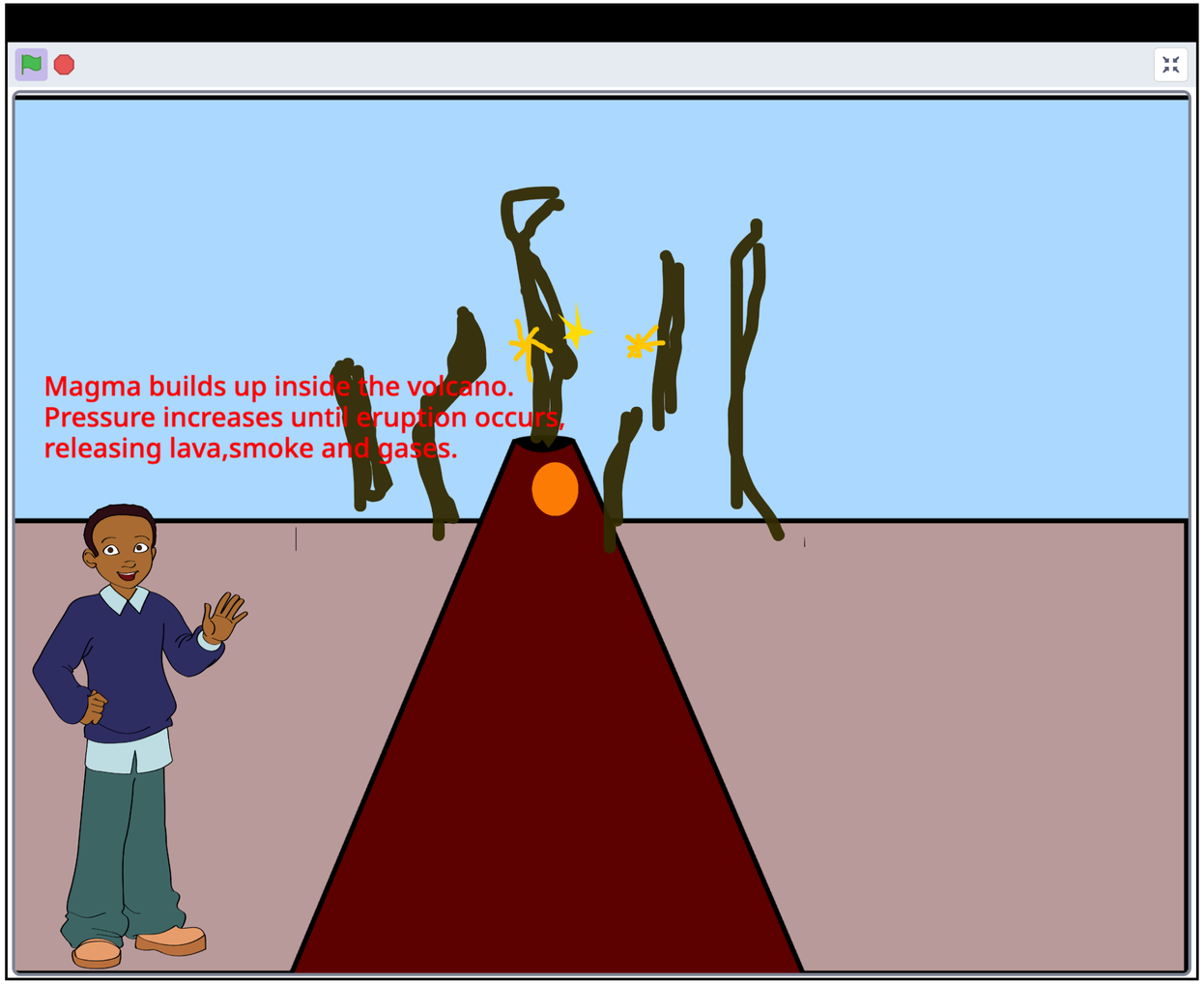
Backdrop: Volcano

Sprites:

- Magma (rising animation)
- Smoke (rising and fading)
- Explosion/starburst
- Text / narration

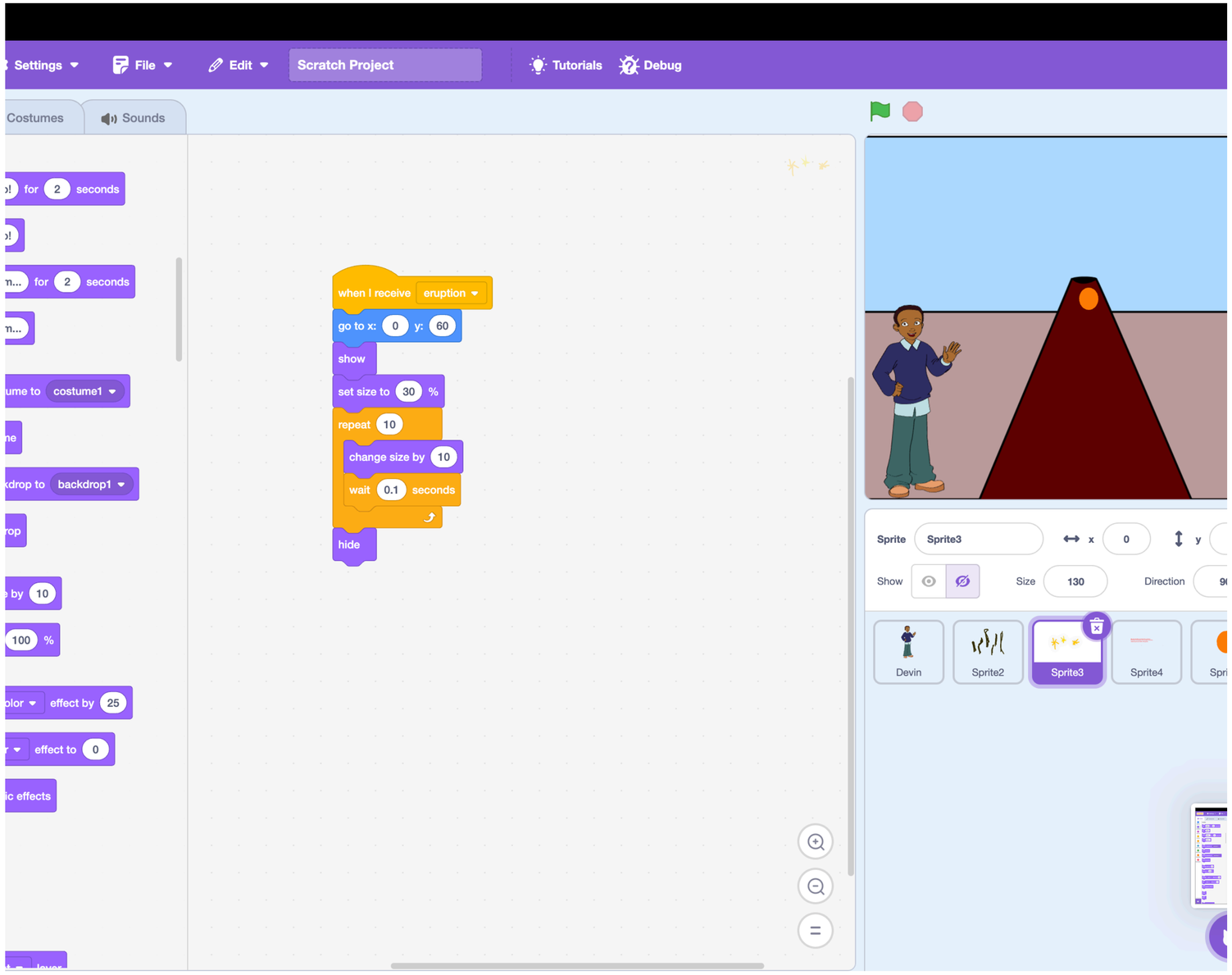
Animation Sequence: Magma → Explosion → Smoke

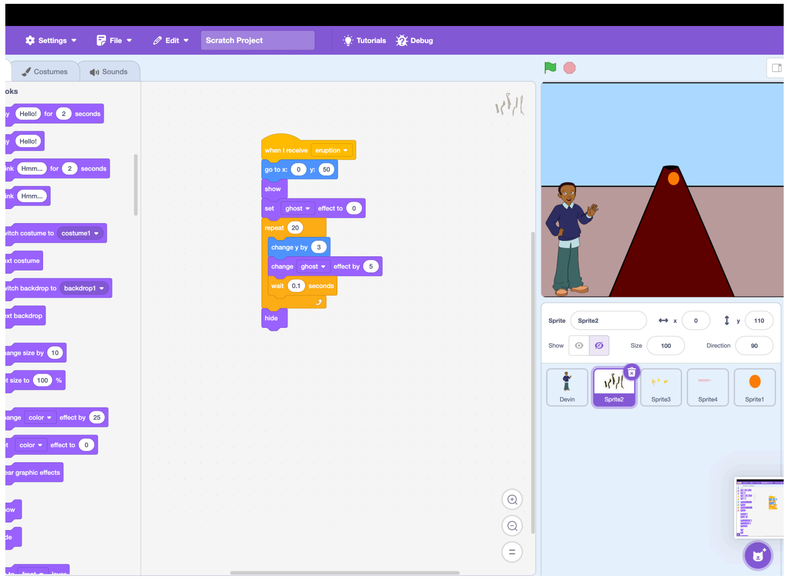
Text/Narration: Line-by-line educational explanation synced with animation

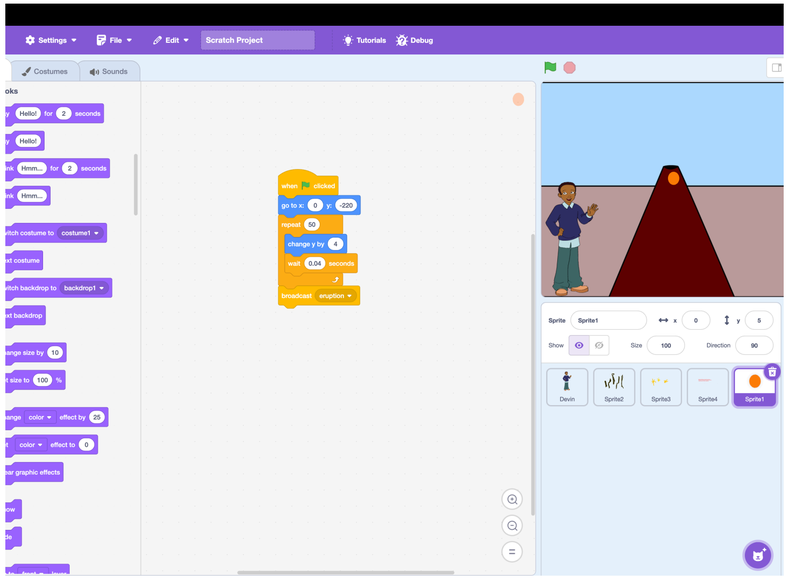


METHODS /ALGORITHM APPLIED

1. **Broadcasts:** `"eruption"` triggers explosion, smoke, and text
2. **Loops:** `repeat` blocks for smooth magma rising and smoke animation
3. **Wait blocks:** synchronize text with narration
4. **Scratch technology applied:** animation, sounds, sprite coordination


Settings
File
Edit
Scratch Project
Tutorials
Debug
Costumes
Sounds
when I receive eruption
go to x: 0 y: 60
show
set size to 30 %
repeat 10
change size by 10
wait 0.1 seconds
hide
Sprite Sprite3
x 0
y
Show
Size 130
Direction
Devin
Sprite2
Sprite3
Sprite4


Settings
File
Edit
Scratch Project
Tutorials
Debug
Costumes
Sounds


Settings
File
Edit
Scratch Project
Tutorials
Debug
Costumes
Sounds

RESULTS & CONCLUSION

The scratch based volcanic eruption was successfully implemented.

The project visually demonstrates the complete eruption process, starting from magma buildup, followed by pressure increase, and finally eruption with lava, smoke, and gases.

Educational text and audio narration appear at correct stages of the eruption, making the learning process clear and easy to understand.

Project combines animations, educational text & narration using scratch to understand a natural phenomena in simple way

References

1.Scratch official website

2. Scratch tutorial

3. Volcanic eruption process