Effort Estimation Using COCOMO

Project Type: Organic

Effort Coefficient (a): 2.4

Exponent (b): 1.05

Time Coefficient (c): 0.38

Estimated LOC: 2,000 LOC

Why This Project Is Organic

The **Organic** model is best suited for small teams working on well-understood problems with minimal risk. Our gesture-based cursor control and drawing system fits this category because:

- The development team consists of **4–5 members**, all familiar with the tools and technologies being used (e.g., OpenCV, MediaPipe, Figma).
- The project scope is **clearly defined**, with manageable complexity and no real-time or mission-critical constraints.
- The system is being developed in an **academic setting**, where the environment is stable and the goals are educational and exploratory.
- The modules — gesture tracking, cursor control, drawing canvas — are **modular and predictable**, allowing for straightforward implementation and testing.

Effort (Person-Months)

$$\text{Effort(PM)} = \text{Coefficient}_{<\text{Effort Factor}>} * (\text{SLOC}/1000)\text{\^{}}P \qquad [100{,}000 \text{ SLOC}/1000 = 100\text{k SLOC}]$$

$$\text{Effort} = 2.4 \times (2)^{1.05} \approx 2.4 \times 2.07 \approx 4.97 \; PM \qquad [2{,}000 \text{ LOC} = 2 \text{ KLOC}]$$

Development Time (Months)

$$\text{Development time} = DM = 2.50 * (PM)\text{\^{}}T$$
$$\text{Time} = 2.5 \times (4.97)^{0.38} \approx 4.59 \; Months$$

Required number of people

$$\text{Required number of people} = ST = PM/DM$$
$$ST = \frac{4.97}{4.59} \approx 1.08 \; People \approx 2 \; People$$

This estimation confirms that a team of approximately **1-2 members** can complete the project within **4.5 months**, aligning well with our academic timeline and available resources.