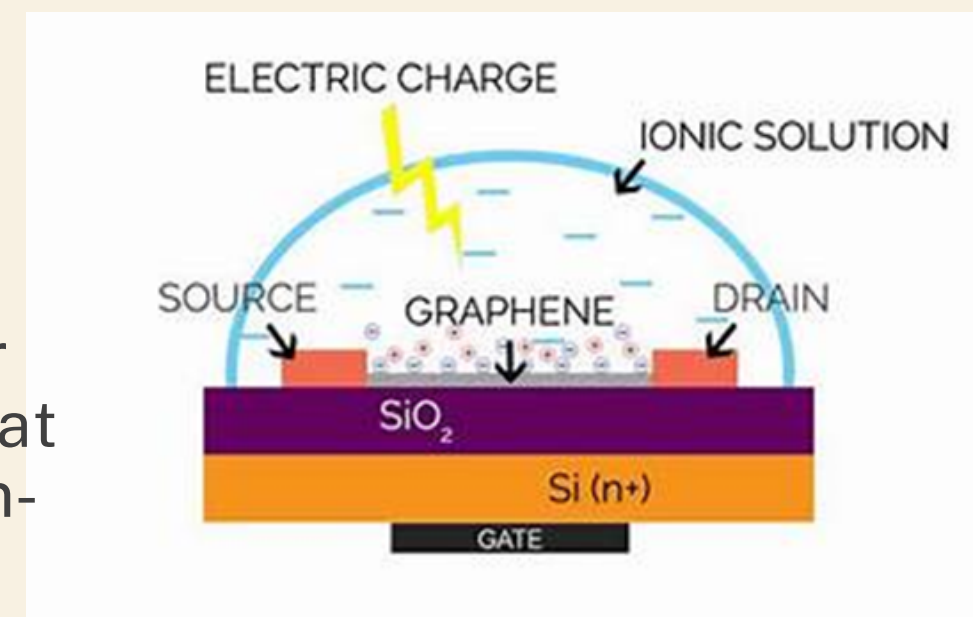


## INTRODUCTION

A Graphene Field-Effect Transistor, or GFET, is a special kind of transistor that uses graphene, a super-thin, one-atom-thick layer of carbon



## STRUCTURE

A GFET has a graphene channel between two contacts (source and drain) for current flow. A gate electrode, separated by an insulating layer, controls this current by changing the graphene's conductivity. This setup makes GFETs fast and energy-efficient.

# Graphene Field Effect Transistors

## BENEFITS

GFETs are fast, low-power, and highly sensitive, making them ideal for high-speed applications, wearables, and sensors in healthcare and environmental monitoring. Their unique properties make them promising for next-generation electronics, medical diagnostics, and environmental detection.

## LIMITATIONS

GFETs lack a natural bandgap, limiting their use in digital logic. Manufacturing high-quality graphene is still difficult and expensive. Additionally, their performance can be affected by environmental factors, reducing stability.

## APPLICATIONS

GFETs are used in high-speed electronics, biosensors, environmental monitoring, wearables, and optoelectronics, leveraging their speed, sensitivity, and low power usage.

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