

# GripAssist

ITE Lee Kuan Yew

ITE College East

Technology Award

**Miya Soh Si Wen**  
(Group Leader)

**Peng Kee Yuan Gelfrid**

**Adam Danyal Bin Muhammad Faizal**

**Seh Jia Jun**

Higher Nitec in Mechanical Engineering

Higher Nitec in Nursing

Nitec in Mechanical Technology



## A Safer Grip

With Singapore's ageing population, falls among seniors are a serious concern, often occurring at home during everyday tasks like getting out of bed. Without proper support or lighting, these movements can quickly lead to dangerous accidents.

To address this, GripAssist was developed—a smart, ergonomic handle for bed rails that provides stable support and automatically activates ambient lighting via a motion sensor. Made with carbon-fibre reinforced 3D printing and generative design, GripAssist is lightweight, strong and cost-effective, helping seniors live more safely and independently.

## Innovators' Inspiration

*"We wanted to design something simple but meaningful that could help prevent injuries among the elderly. Through this project, we realised how technology like generative design and IoT can work together to solve everyday healthcare challenges. Our hope is that GripAssist can give seniors more confidence and independence while easing the burden on caregivers."*

– Miya Soh Si Wen

## What's So Special?

- The project came in second at the Asia Design-to-Make Competition 2025.
- The team leveraged Generative AI through Fusion 360's design exploration tools to overcome initial challenges, such as accommodating different bed rail sizes while keeping the prototype lightweight yet strong. These tools optimised the structure for strength while reducing material usage by about 40%.
- Its fully 3D-printable design also makes it cost-effective and easy to scale for deployment across hospitals, homes, and eldercare facilities.