STRIDE ASSISTIVE DESIGNATHON 2025

What is the STRIDE Designathon?

PURPOSE

IMPACT

STRIDE ASSISTIVE DESIGNATHON 2025

Goals of the Designathon

FROM IDEATION TO IMPLEMENTATION

- **Empower participants to identify real-world challenges.**
- **Encourage design thinking to develop practical solutions.**
- **Build prototypes that can be distributed to BUDS institutions and private schools.**

FOCUS AREAS:


EATING


COMMUNICATION


TOILETRY


LEARNING


MOBILITY

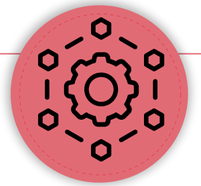

SENSORY SUPPORT

STRIDE ASSISTIVE DESIGNATHON 2025 OVERVIEW

Making Kerala India's First Inclusive Innovation Hub

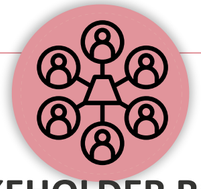
VISION

Creating affordable, accessible assistive devices through collaborative innovation



KEY PARAMETERS

- Timeline: March - June 2025
- Target: 100+ teams developing low-tech assistive solutions
- Focus: Multiple disability domains including intellectual, speech, and visual
- Final Output: 12 market-ready assistive device designs



STAKEHOLDER ROLES

- IEEE: Running the Designathon-Makethon and the mega event.
- KSUM: Innovation and technology ecosystem support
- KTU: Academic participation and technical support
- Kudumbashree: Community engagement and user testing
- SSK: Domain expertise and testing environment
- TCS and other Industry: Technical mentorship and industrial support
- Social Justice: Policy alignment and scaling support
- Tinker Hub: Community and Volunteering support

IMPLEMENTATION ROADMAP

FOUNDATION (JANUARY-FEBRUARY 2025)

- Requirements workshop with special school teachers across Kerala along with Kudumbashree
- Device prioritization and need analysis
- Stakeholder alignment

INNOVATION PIPELINE (MARCH-APRIL 2025)

- Designathon announcement and registration
- 3 awareness sessions (2 offline, 1 online)
- SHIFT methodology training
- DRL framework introduction

DESIGN & DEVELOPMENT (MAY-JUNE 2025)

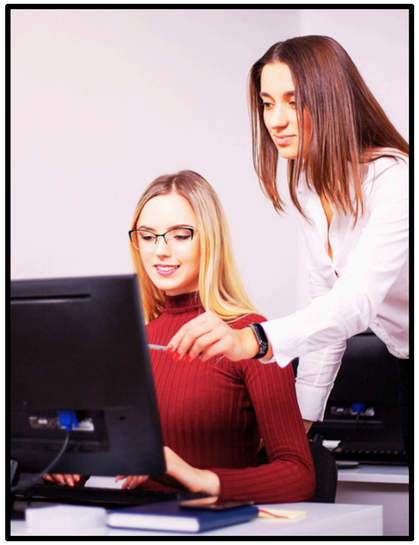
- One-day designathon pitch event in Ernakulam
- Selection of top 100 teams
- Prototyping support
- User testing and refinement
- Final selection of 12 designs

STRIDE ASSISTIVE DESIGNATHON 2025

IEEE, INSTITUTION and Faculty Roles & Responsibilities

MENTORS

Guide student teams through ideation, research, and prototyping.



EVALUATORS

Participate in the evaluation process to select top designs.

CHANGE AGENTS

Advocate for inclusive SHIFT methodology within their institutions and communities.

STRIDE ASSISTIVE DESIGNATHON 2025

TOP 12 WINNING TEAMS

Cash Prizes, Certificates, Recruitment by companies and Hall of Fame Recognition.

FACULTY MENTOR AWARDS

Recognizing outstanding mentorship and contribution.

SPECIAL AWARDS

Best Inclusive Design, Most Scalable Solution, and People’s Choice Award.

PHASE 1

CONCEPT DEVELOPMENT

Duration: March-April 2025

Focus: Problem identification and low-fidelity solution design

Submission: Digital concept portfolio with supporting documentation

Selection: Top 100 teams advance to Phase 2

PHASE 1
EXPECTATIONS & DELIVERABLES

What we're looking for in Phase 1

Problem Definition:

- Clear identification of a specific challenge faced by persons with disabilities or an exisitng challenge of PwD
- Evidence of engagement with potential users to understand needs
- Problem statement with impact assessment

Concept Design:

- Low-fidelity prototype (paper/chart-based)
- Design iterations showing evolution of thinking
- Consideration of usability, affordability, and accessibility

Documentation:

- Photos of prototype and design process
- Explanatory text connecting the design to the problem
- Preliminary impact assessment

PHASE 1

EVALUATION CRITERIA

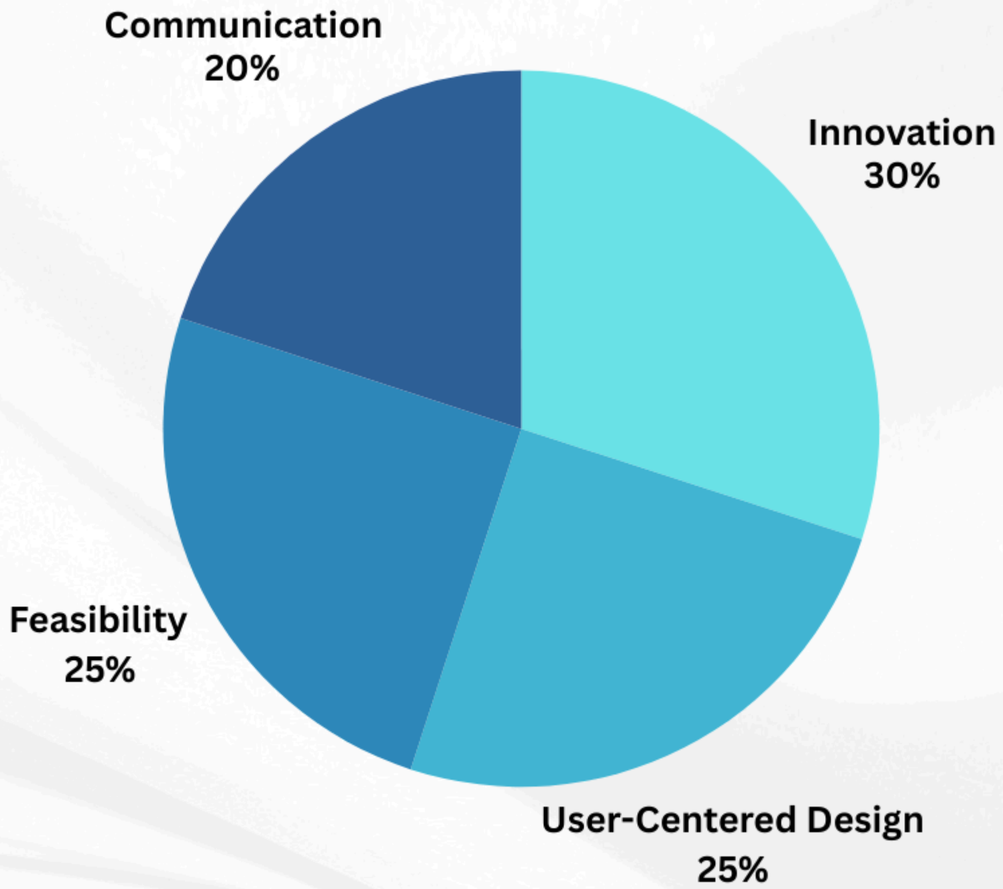
How your Phase 1 Submission will be judged

Innovation : 30%

Problem-Centered Design : 25%

Feasibility : 25%

Communication : 20%



PHASE 2

HIGH-FIDELITY PROTOTYPING

Duration: May-June 2025

Participants: 100 selected teams from Phase 1

Focus: Creating functional prototypes with advanced technologies

Culmination: Final Pitch and showcase event in Ernakulam

PHASE 2

MANDATORY REQUIREMENTS

Inclusive Team Composition

- Must include at least one person with disability as active team member
- Collaborative design approach required throughout process

User Testing Documentation

- Multiple iterations of user testing with target beneficiaries
- Documentation of feedback and resulting design modifications

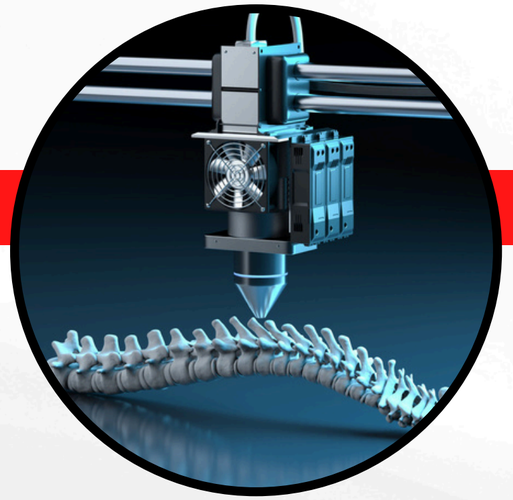
Technical Specifications

- Material selection justification
- Production cost analysis
- Assembly/use instructions

PHASE 2

RESOURCES & SUPPORT

RESOURCES AVAILABLE FOR PHASE 2 TEAMS



Technical Resources

- Access to 3D printers (if needed)
- Materials for prototype development
- Technical mentorship from industry experts (IEEE and Industry)

Community Connections

- Facilitated engagement with potential users through BUDS institutions
- Feedback sessions with healthcare professionals

Documentation Support

- Photography/videography assistance during designathon
- Template for technical documentation

FINAL EVALUATION & RECOGNITION

Makethon Showcase

- Live demonstration of working prototype
- 10-minute presentation + 5-minute Q&A
- Evaluation by expert panel and community members

Evaluation Criteria

- Functionality and effectiveness (25%)
- User experience and accessibility (25%)
- Innovation and originality (20%)
- Scalability and production viability (20%)
- Presentation quality (10%)

Recognition for Top 12 Teams

- Cash prizes
- Job Interviews with MNCs
- Potential for implementation support
- Inclusion in STRIDE repository of solutions

ASSISTIVE TECHNOLOGY CHALLENGE AREAS

PERSONAL CARE & HYGIENE

- Toileting Independence
- Grooming Assistance
- Menstrual Care Support
- Dressing Support

MOBILITY & POSITIONING

- Postural Support Systems
- Therapeutic Equipment
- Footwear Management

EDUCATIONAL SUPPORT

- Fine Motor Learning Tools
- Vocational Training Adaptations
- Sensory Processing Support

SPECIALIZED NEEDS

- Multiple Disabilities Support
- Cerebral Palsy-Specific Solutions

ADAPTIVE EQUIPMENT FOR LEARNING

- Math Learning Tools
- Reading Access Technologies

TOILETING INDEPENDENCE

- **Problem Statement:** Children with motor impairments cannot manage clothing before and after toilet use or maintain safe positioning during toileting.
- **Impact:** Restricted independence, privacy concerns, and potential for toileting accidents and injuries.
- **Design Challenge:** Develop comprehensive toileting support systems including clothing management tools, stabilizing supports, and post-toileting hygiene solutions.

GROOMING ASSISTANCE

- **Problem Statement:** Essential self-care tasks like hair combing, nail cutting, and teeth brushing remain inaccessible due to grip and coordination limitations.
- **Impact:** Poor hygiene practices leading to health issues, lowered self-esteem, and continued caregiver dependence.
- **Design Challenge:** Design adaptable grooming tools with enhanced grip features, extended handles, and stability controls to enable independent self-care routines.

MENSTRUAL CARE

- **Problem Statement:** Girls with disabilities cannot independently manage sanitary pads due to fine motor limitations and coordination difficulties.
- **Impact:** School absences during menstruation, compromised dignity, hygiene concerns, and continued dependence on caregivers for intimate care.
- **Design Challenge:** Create adaptive tools specifically designed for girls with disabilities to independently apply, position, and dispose of sanitary products.

DRESSING SUPPORT

- **Problem Statement:** Managing clothing fasteners (buttons, zippers) and putting on/removing garments presents significant barriers to independence.
- **Impact:** Extended preparation time, limited clothing choices, and reliance on caregivers for basic dressing needs.
- **Design Challenge:** Create intuitive buttoning tools and clothing manipulation aids that work with existing wardrobes to promote dressing autonomy.

POSTURAL SUPPORT SYSTEMS

- **Problem Statement:** Children with physical disabilities struggle to maintain proper head and body positioning during educational activities.
- **Impact:** Fatigue, discomfort, limited engagement with learning materials, and potential long-term physical complications.
- **Design Challenge:** Design adaptable, lightweight positioning supports for head and trunk stabilization that can be integrated into existing classroom seating.

THERAPEUTIC EQUIPMENT

- **Problem Statement:** Standard exercise and therapy equipment doesn't accommodate the specific needs of children with disabilities.
- **Impact:** Inability to perform recommended therapeutic exercises, limiting physical development and rehabilitation progress.
- **Design Challenge:** Create accessible, engaging therapeutic devices that support prescribed exercises while being suitable for school and home environments.

FOOTWEAR MANAGEMENT

- **Problem Statement:** Putting on and removing shoes independently is impossible for many children with motor limitations.
- **Impact:** Increased dependency during transitions (indoor/outdoor activities) and potential exclusion from activities requiring specific footwear.
- **Design Challenge:** Develop shoe assistance devices that work with various footwear styles to support independent donning and removal.

FINE-MOTOR LEARNING TOOLS

- **Problem Statement:** Standard writing instruments and art supplies don't accommodate diverse grip patterns and motor control challenges.
- **Impact:** Limited participation in writing, drawing, and manipulative classroom activities, affecting academic progress and creative expression.
- **Design Challenge:** Design modular writing and art tools with customizable grips and stabilizing features that adapt to individual motor capabilities.

VOCATIONAL TRAINING ADAPTATIONS

- **Problem Statement:** Standard vocational training equipment and tools present barriers to skill development for students with disabilities.
- **Impact:** Reduced access to vocational learning, limiting future employment opportunities and economic independence.
- **Design Challenge:** Create adaptive tools specifically for vocational education that support skills development while accommodating various physical limitations.

SENSORY PROCESSING SUPPORT

- **Problem Statement:** Children with sensory processing challenges lack appropriate tools to help regulate sensory input in educational environments.
- **Impact:** Sensory overload or understimulation affecting attention, behavior, and learning engagement.
- **Design Challenge:** Develop portable, durable sensory regulation tools that can be discreetly used in classroom settings to support focus and emotional regulation.

MULTIPLE DISABILITIES SUPPORT

- **Problem Statement:** Children with multiple disabilities face complex, intersecting challenges that aren't addressed by single-focus assistive devices.
- **Impact:** Exclusion from activities that could be accessible with appropriately designed multi-functional supports.
- **Design Challenge:** Design versatile, adaptable tools that simultaneously address multiple support needs while remaining simple to use and maintain.

CEREBRAL PALSY- SPECIFIC SOLUTIONS

- **Problem Statement:** The unique movement patterns and variable muscle tone associated with cerebral palsy require specialized adaptive approaches.
- **Impact:** Standard adaptive equipment often fails to accommodate the specific motor patterns present in cerebral palsy.
- **Design Challenge:** Create tools specifically designed to accommodate involuntary movements, spasticity, and atypical muscle tone while supporting functional independence. You can also think of CP chair.

COMMUNICATION ACCESSIBILITY

- **Problem Statement:** Non-verbal children or those with speech impairments lack accessible, durable communication tools for daily interactions.
- **Impact:** Unmet needs, frustration, social isolation, and limited classroom participation due to communication barriers.
- **Design Challenge:** Develop low-tech, customizable communication systems that are intuitive for users and communication partners while being durable for daily use.

MATH
LEARNING TOOLS

- **Problem Statement:** Abstract mathematical concepts remain inaccessible for children with cognitive disabilities without concrete, manipulable learning aids.
- **Impact:** Mathematical skill deficits affecting both academic progress and practical life skills involving numerical concepts.
- **Design Challenge:** Design tangible, interactive number systems that make abstract concepts concrete through multisensory engagement.

READING
ACCESS TECHNOLOGIES

- **Problem Statement:** Standard printed materials exclude children with visual or cognitive processing difficulties from accessing educational content.
- **Impact:** Reading delays, content comprehension challenges, and diminished independent learning opportunities.
- **Design Challenge:** Create affordable tactile reading guides or text modification tools that enhance readability and comprehension across learning contexts.

STRIDE
ASSISTIVE DESIGNATHON
2025

PHASE 1 & 2 EXAMPLES

PHASE 1

CONCEPT DEVELOPMENT

"EasyGrip" Adaptive Eating Aid

PROBLEM IDENTIFICATION

PROBLEM STATEMENT

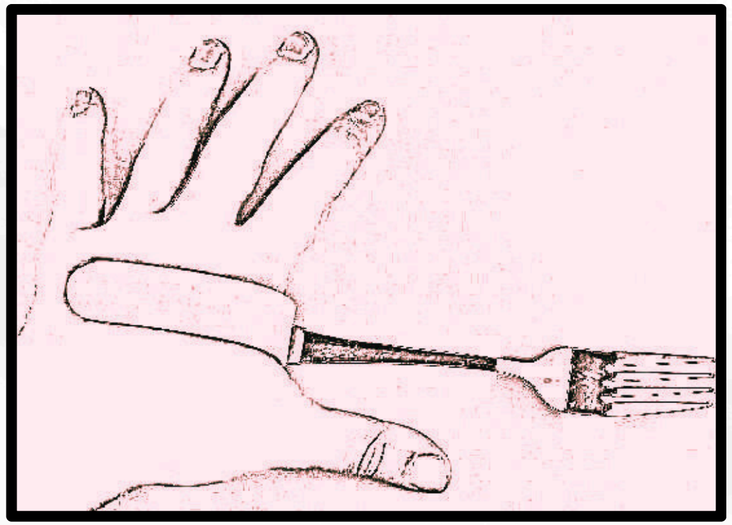
- 7-year-old Arun has cerebral palsy affecting fine motor skills
- Cannot grip standard utensils effectively
- Experiences hand tremors when lifting food
- Requires constant assistance during all meals
- Missing social aspects of eating with peers

PHASE 1

CONCEPT DESIGN

"EasyGrip" Adaptive Eating Aid

PAPER PROTOTYPE



THE ‘EasyGrip’ SOLUTION

- Wide, ergonomic handle with finger indentations
- Flexible, adjustable wrist strap for security
- Interchangeable utensil heads (spoon, fork)
- Weighted base for increased stability
- Simple sketch showing how the device would be held

DESIGN RATIONALE

How This Addresses the Problem

- Enlarged grip accommodates limited hand strength
- Secure strap prevents dropping during tremors
- Weight distribution provides stability
- Customizable heads for different food types
- Simple enough for low-cost production

PHASE 1

SUBMISSION INCLUDES

Clear problem statement with specific user challenges

Hand-drawn or digital concept sketches

Written explanation of design features and benefits

Expected impact on user's independence

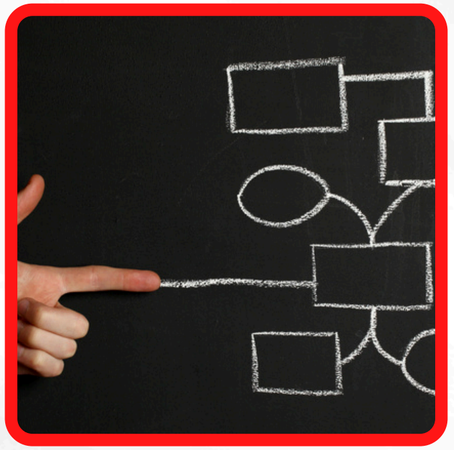
Note: *No functional prototype required at this stage*

PHASE 1

ADVANTAGES (OPTIONAL)

These elements strengthen your submission

Evidence of understanding user needs (interviews/observations)



Multiple design iterations showing thought process

Basic material considerations

Consideration of user dignity and social factors

Simple cost estimates

PHASE 2
HIGH-FIDELITY PROTOTYPING

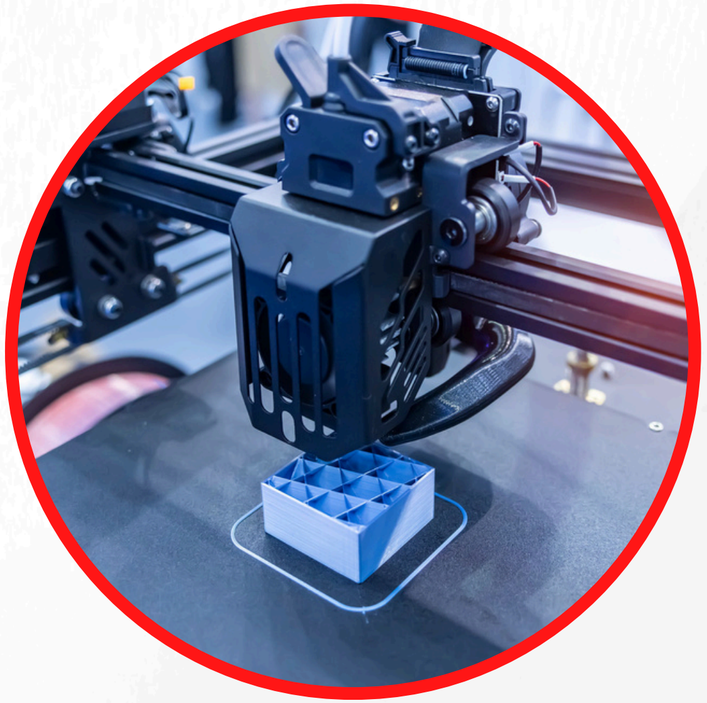
From Paper Concept to Working Prototype

PROTOTYPE DEVELOPMENT

From Paper Concept to Working Prototype

Creating a Functional Solution

- Transform paper concept into physical prototype
- Utilize fablab ecosystem resources for production
- Test with actual users and refine based on feedback
- Document the development process
- Create a working prototype for demonstration



INVOLVING PERSONS WITH DISABILITIES

Critical Phase 2 Requirement

- Person with disability must be active team member
- Involve user in design refinement decisions
- Conduct testing in real-world environments
- Document user feedback during development
- Ensure prototype addresses actual user needs

TECHNICAL
EXECUTION

EasyGrip Prototype Features

- Materials selected for safety and durability
- Ergonomic design customized to user's hand
- Functional mechanism for interchangeable heads
- Weighted for optimal balance during use
- Comfortable, washable materials

USER
TESTING & VALIDATION

Demonstrating Real Impact

- Testing protocol with multiple meal scenarios
- Documentation of user experience
- Before/after comparison of independence
- Observations of practical usability
- User testimonial on how prototype affected daily life

PHASE 2 DEMONSTRATION

Final Evaluation Components

Working prototype for hands-on demonstration

Clear presentation of problem and solution

Evidence of user testing and refinement

Documentation of development process

In-person explanation of features and benefits

PHASE 1 VS. PHASE 2: KEY DIFFERENCES

PHASE 1: CONCEPT DEVELOPMENT	PHASE 2: HIGH-FIDELITY PROTOTYPING
Paper/digital sketches	Functional physical prototype
Theoretical solution	Tested, refined solution
Problem identification	Problem solving with evidence
Estimated impact	Measured impact with actual users
No physical prototype required	Working prototype demonstration
Digital submission	In-person presentation
Team composition flexible	Must include person with disability

WHY PARTICIPATE

The STRIDE Opportunity

- Create real solutions for real people
- Access to fablab ecosystem resources
- Expert mentorship throughout the process
- Potential for your design to be implemented
- Recognition for your innovation
- Develop skills in inclusive design
- Make a meaningful difference in someone's life

OFFICIAL

RULES & GUIDELINES

PHASE 1

OFFICIAL

RULES & GUIDELINES

TEAM FORMATION & ELIGIBILITY

PHASE 1 REQUIREMENTS

- Teams must have 2-5 members
- Each team must have a unique name for identification
- All team members must be currently enrolled students
- Teams must register through the official portal by [DEADLINE DATE]
- No faculty mentor required for initial phase

PHASE 1

OFFICIAL

RULES & GUIDELINES

PHASE 1: CONCEPT DEVELOPMENT

PROCESS REQUIREMENTS

- Select a specific problem faced by a person with disability
- Directly engage with potential users to understand real needs (recommended)
- Develop a conceptual solution through sketches/diagrams
- Document problem statement, solution concept, and expected impact
- Submit all materials digitally through the portal by [PHASE 1 DEADLINE]

PHASE 1

OFFICIAL

RULES & GUIDELINES

PHASE 1 SUBMISSIONS

REQUIRED DELIVERABLES

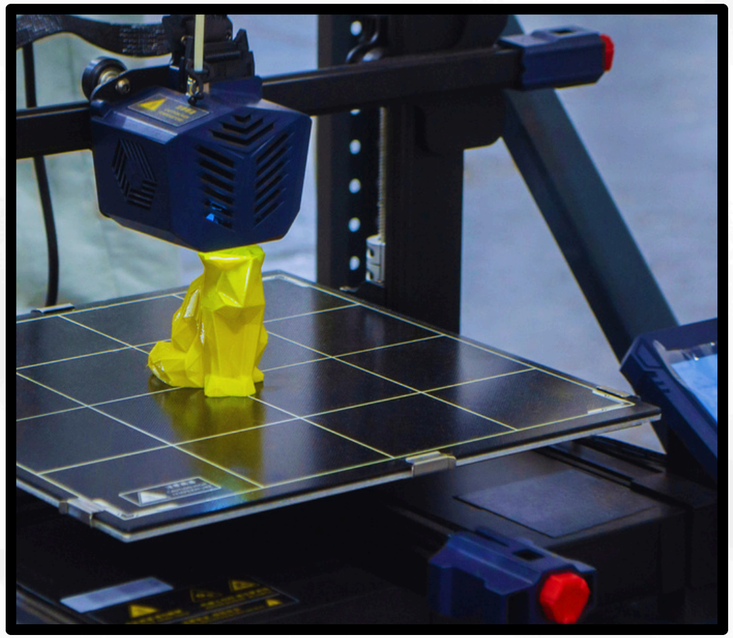
- Team name and member information
- Problem statement with clear explanation of the disability challenge
- Concept design (sketches/diagrams)
- Explanation of how the solution addresses the problem
- Expected impact on user's quality of life
- Optional: Evidence of user engagement and research

PHASE 2

OFFICIAL

RULES & GUIDELINES

PHASE 2: PROTOTYPING



TEAM REQUIREMENTS

- **MANDATORY**: Include at least one person with disability for whom the solution is being developed
- **MANDATORY:** Add a faculty mentor to provide guidance
- Original team members from Phase 1 must continue
- Team can add technical advisors if needed

PHASE 2

OFFICIAL

RULES & GUIDELINES

PHASE 2 DEVELOPMENT

PROCESS REQUIREMENTS

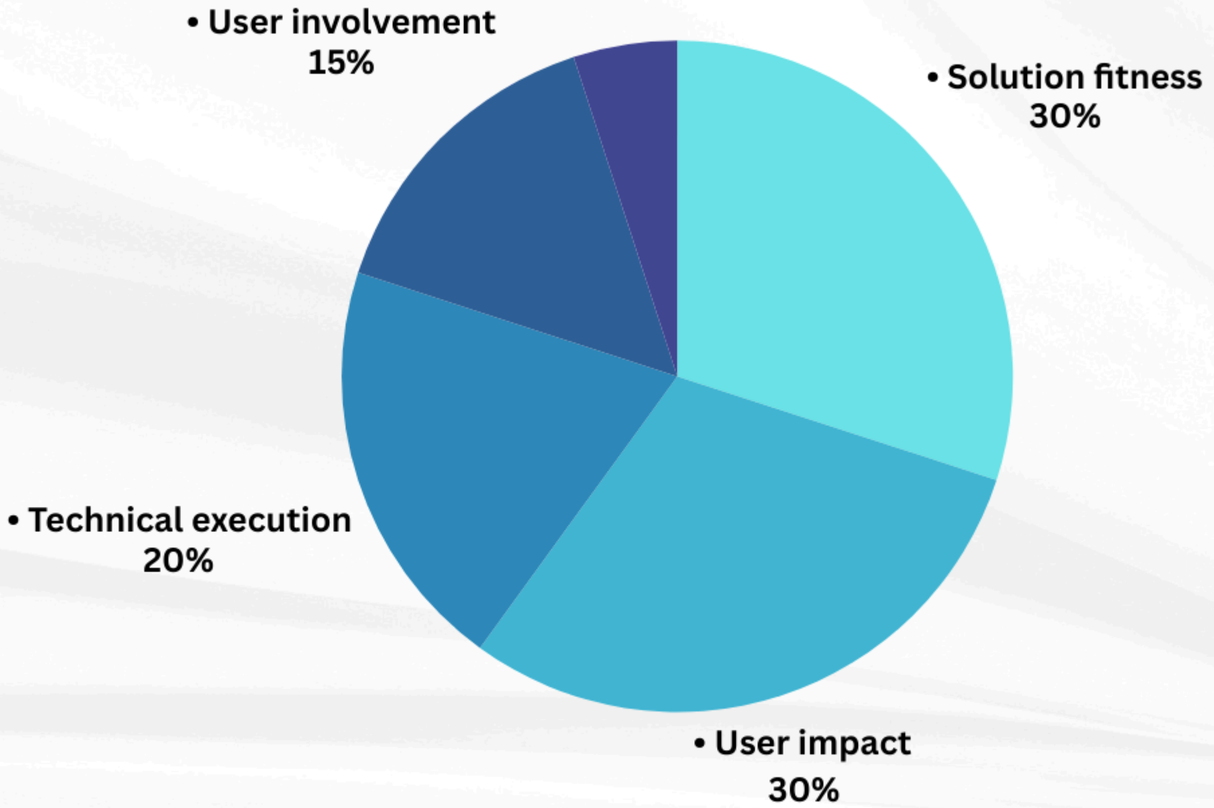
- Transform concept into functional prototype using fablab ecosystem resources
- Conduct multiple rounds of testing with the user(s)
- Document development process, including iterations based on feedback
- Collect measurable data on solution effectiveness
- Prepare for in-person demonstration at final event

PHASE 2

OFFICIAL

RULES & GUIDELINES

PHASE 2 EVALUATION



JUDGING CRITERIA

- Solution fitness: How well the prototype addresses the identified problem (30%)
- User impact: Measurable improvement in independence or quality of life (30%)
- Technical execution: Quality and functionality of prototype (20%)
- User involvement: Evidence of meaningful co-creation with persons with disabilities (15%)
- Presentation quality: Clear communication of process and results (5%)

FINAL EVENT
MAKETHON SHOWCASE

- All Phase 2 teams will demonstrate their solutions in-person
- 10-minute presentation + 5-minute Q&A
- Live demonstration with user participation encouraged
- Expert panel evaluation with community input
- Top 12 teams will receive recognition and awards

ETHICAL

GUIDELINES

Throughout Both Phases:

- Prioritize dignity and autonomy of persons with disabilities
- Obtain informed consent before engaging users
- Maintain privacy and confidentiality of user information
- Focus on empowerment rather than "fixing" individuals
- Consider sustainability and accessibility in all designs
- Adhere to inclusive design principles and language

STRIDE Assistive Designathon 2025

Innovate for Inclusion

Timeline

18th & 24th Feb 2025	4th March 2025	7th March 2025	10th March 2025	14th March - 20th April 2025	1st April – May 0th 2025	11th May -9th June 2025
STRIDE Ambassadors Pre-online Orientation	Faculty & student community identification & final list	STRIDE Ambassadors Training session at KSUM, Kochi	Campaign starts	Phase 1 starts	Preliminary Evaluation & 100 teams to be shortlisted	Completion of Phase 2

15th June 2025	25th June 2025
STRIDE Designathon evaluation and announcing the final 12 winner teams	STRIDE Launch & Mega Event (tentative)

K-DISC
Kerala Development and Innovation Strategic Council