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REGIONAL CONFERENCE

INCLUSIVE ENERGY TRANSITION IN SOUTH ASIA AND BEYOND

7–9 MAY 2024 • Galle, Sri Lanka

Technology adaptation for distributed RE, ES and E-mobility – A case study

- Focus on Community-Level SMEs (CL-SMEs):
  - Develop sectors like small and medium-scale hotels, tuk-tuk service stations, primary schools, three-wheeler clusters, etc. to foster inclusive and sustainable development.
- Challenges Faced by CL-SMEs recently:
  - Scarcity of essential imported goods.
  - Higher tariffs introduced by CEB impacting operational costs.
- Sustainable Energy Solution:
  - Integrate solar photovoltaic (PV) systems to provide affordable energy.
  - Use E-wheelers as a distributed energy storage
- Challenges:
  - The main transportation modes of CL-SMEs, two and three-wheelers contribute to urban smog.
  - Electric two and three-wheelers (E-wheelers) can significantly reduce air pollution. However, securing capital is a challenge
- Barrier to the Adoption of E-wheelers:
  - Cost 50-100% more than fossil fuel-powered counterparts, hindering widespread adoption.

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Bottom-up Green Energy Transition and Sustainable Transport (GENTRuST)

- The aim of GENTRuST is to demonstrate the following
  - Reduce energy bills and carbon emissions for CL-SMEs to improve competitiveness
  - Affordable green energy access for local transport providers
  - Business innovation: New business models to unlock financing and capital to develop community energy
- The approach of GENTRuST is to:
  - **Local Leadership:** Tailor the energy solutions to meet the unique socio-economic and technical needs of CL-SMEs.
  - **Promote Inclusivity**: Ensure gender equality and social inclusion in developing sustainable and affordable energy systems.
  - **Transform Energy Supply**: Upgrade CL-SMEs' energy systems with technologies like solar PV, energy storage, IoT networks, AI-based controllers, and demand-side integration.
  - **Sustainable Business Models**: Maintain the operation of energy supply systems through innovative business strategies.

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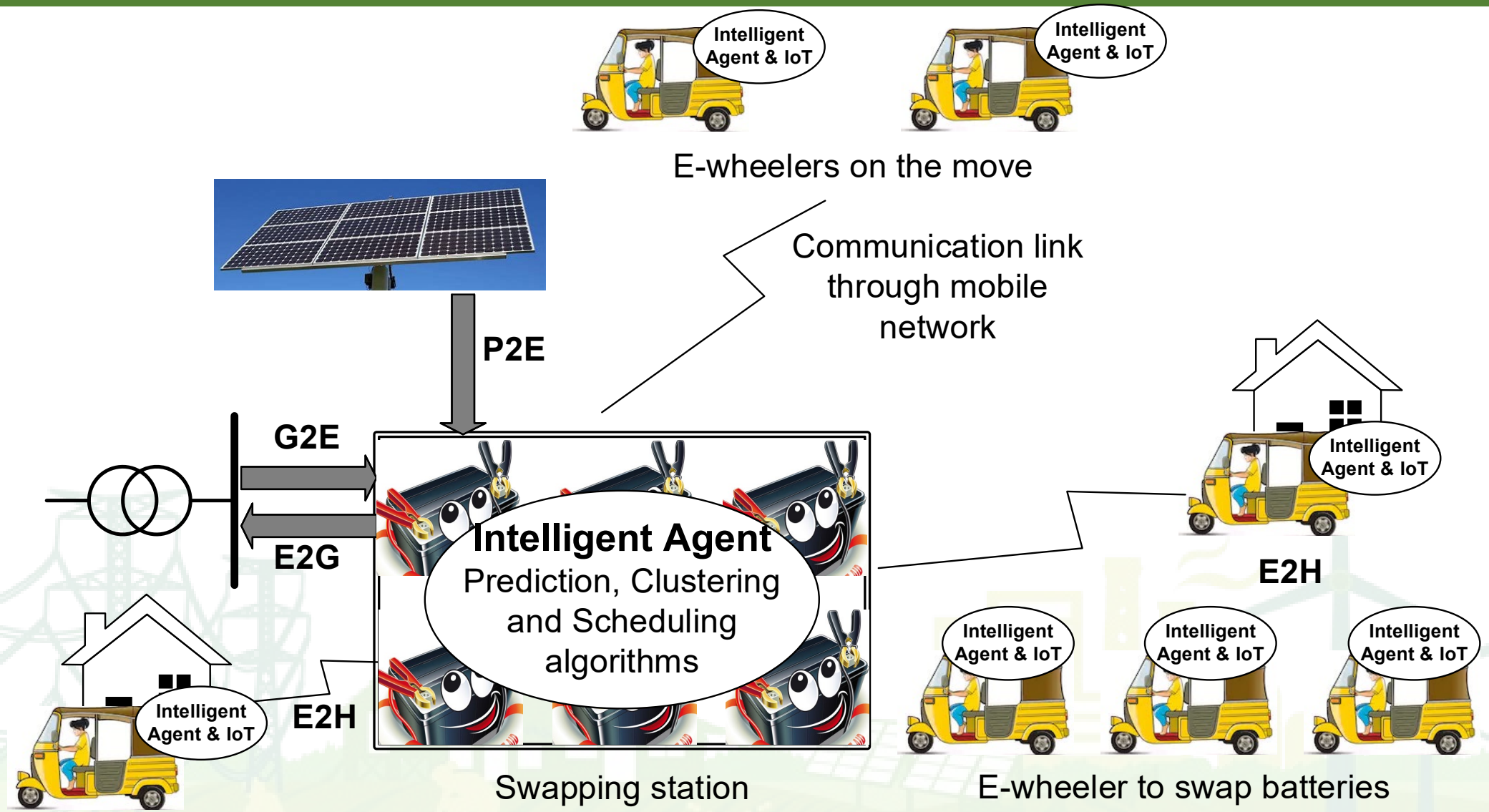
Architecture of GENTRuST



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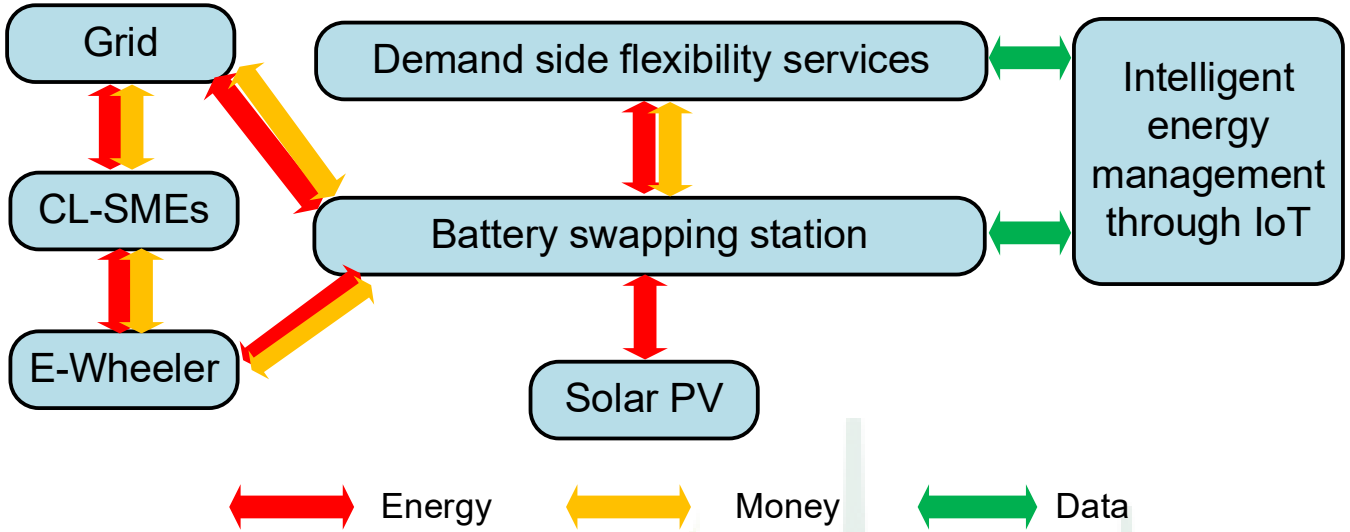
Progress so far

Multi-sided platform



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Conclusions

- GENTRuST Case Study:
  - Demonstrates technology adaptation for resilience in energy solutions.
  - High costs of roof-top solar PV and E-wheelers reduce attractiveness.
  - E-wheelers with swappable batteries serve as energy carriers, enabling new business models and energy trading with the grid via an aggregator.
  - The project establishes a sustainable energy network centered on CL-SMEs as both consumers and Prosumers.
- Gender Equality and Social Inclusiveness: Emphasizes inclusive principles within the SME sector.
- Scalability and Impact: The project's design allows for easy expansion by linking similar CL-SME energy cells, amplifying its impact.
- Supports SDG 7 and SDG 13: Promotes accessible, reliable, and sustainable energy (SDG 7) and addresses climate action (SDG 13) through renewable energy use.

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