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Challenge Statement: Improving Outdoor Thermal Comfort at Jurong Innovation District (JID)

Challenge Theme - Low Carbon Solutions

Background



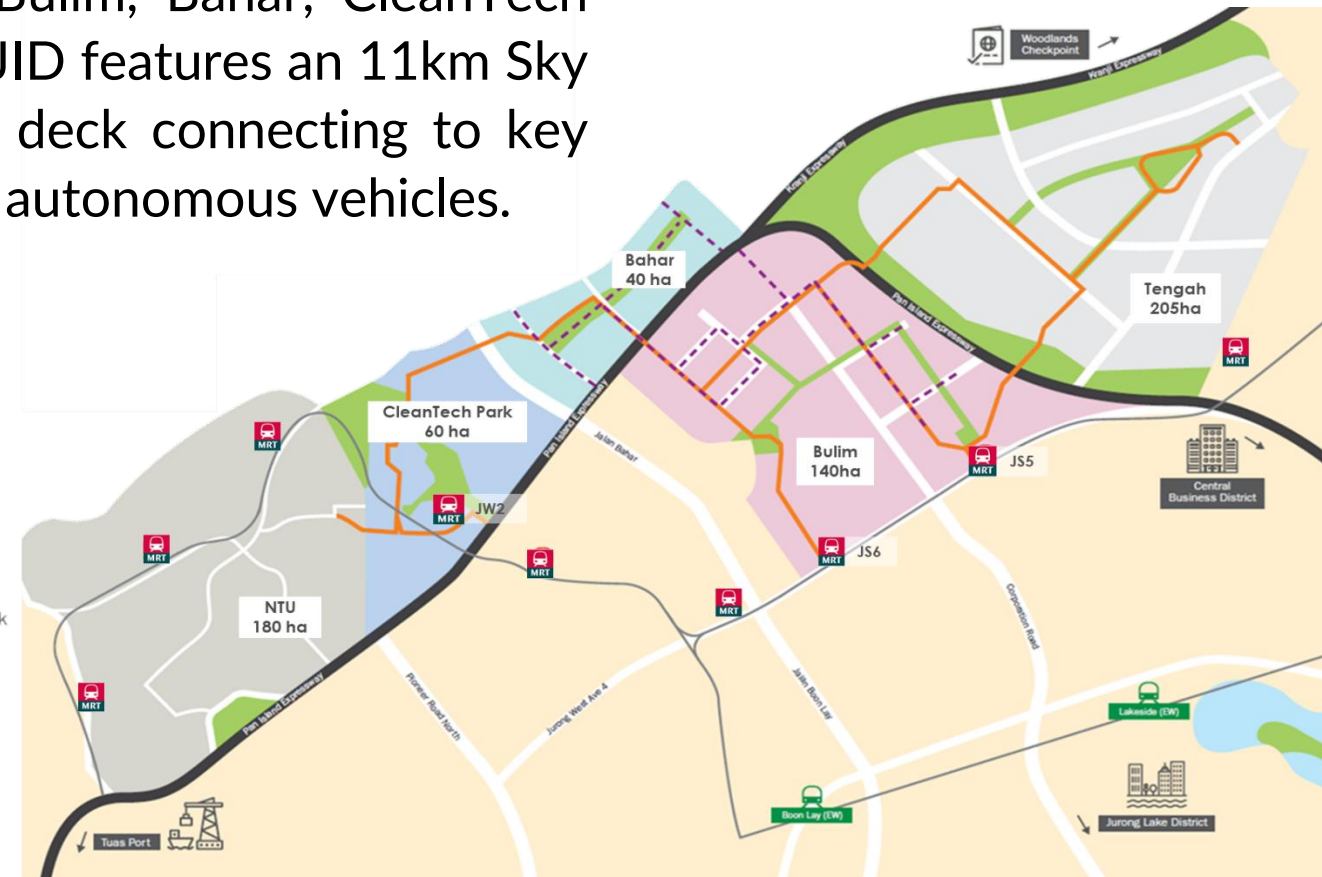
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- JID is a 620-ha next-generation industrial district developed by JTC to support the transformation of manufacturing industries.
- JID spans across five precincts, including Bulim, Bahar, CleanTech Park, Tengah and NTU. As a car-lite district, JID features an 11km Sky Corridor serving as a multi-modal elevated deck connecting to key transport nodes by walking, cycling or future autonomous vehicles.

LEGEND

- Expressway
- Mobility Corridor
- - - District Logistic Network
- MRT Station (Jurong Region Line)

* Slated to open in 2026



Challenges

- Rising air temperatures and relative humidity in Singapore.
- Energy efficient climate adaptation measures are required to cool the outdoor spaces along the Sky Corridor - especially critical in areas of congregation (e.g. plazas) and thoroughfares to improve the experience of users and encourage higher footfall.
- Proposals can include active and/or passive solutions that improve outdoor thermal comfort while minimizing energy use and emissions.



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Desired Outcome



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The envisioned solution shall:

- Effectively cool outdoor spaces to improve thermal comfort of users (as measured via Predicted Mean Vote).
- Minimize energy use and carbon footprint.
- Be scalable, ensuring cost and space effectiveness.
- Allow for remote monitoring and control, with potential to interface with JTC's estate Open Digital Platform (where applicable).
- Minimize equipment downtime through predictive maintenance and equipment monitoring.



Requirements

1. Sound methodology to improve thermal comfort.
2. Able to track and respond dynamically to outdoor site conditions such as weather and footfall.
3. Measurement plan including anticipated energy use and carbon footprint.
4. Solution is able to be monitored remotely and controlled.
5. No adverse impact on environment (i.e. air quality)
6. Minimal waste heat generation.
7. Includes a desktop study on the scalability, cost and space requirements should the system be implemented at scale.