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**(57) Abstract :**

The present disclosure discloses a system (102) for monitoring temperature of low power devices using silicon germanium nanowire junction less field effect transistors, the system (102) configured to employ device simulation module (104), incorporate a Lombardi mobility model (106), and utilize fermi-Dirac, auger recombination, and Shockley-read-hall model (108), wherein the Shockley-read-hall model is utilized for quantum confinement and lateral tunnelling effects. FIG. 1

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