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- (71) **Applicants:** **NANYANG TECHNOLOGICAL UNIVERSITY** [SG/SG]; 50 Nanyang Avenue, Singapore 639798 (SG). **THE REGENTS OF THE UNIVERSITY OF CALIFORNIA** [US/US]; 1111 Franklin Street, 12th Floor, Oakland, California 94607 (US).
- (72) **Inventors:** **SU, Rong**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG). **PNG, Lih Chieh**; c/o Nanyang Technological University, 50 Nanyang Avenue, Singapore 639798 (SG). **SRINIVASAN, Seshadri**; c/o The Regents of the University of California, 1111 Franklin Street, 12th Floor, Oakland, California 94607 (US). **POOLLA, Kameshwar**; c/o The Regents of the Uni-

versity of California, 1111 Franklin Street, 12th Floor, Oakland, California 94607 (US).

- (74) **Agent:** **VIERING, JENTSCHURA & PARTNER LLP**; P.O. Box 1088, Rochor Post Office, Rochor Road, Singapore 911833 (SG).

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(54) **Title:** METHOD AND CONTROL SYSTEM FOR CONTROLLING AN AIR-CONDITIONING SYSTEM

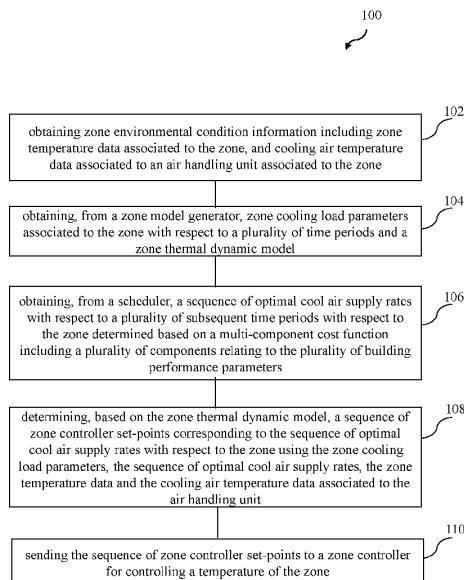


FIG. 1

(57) **Abstract:** There is provided a method of controlling an air-conditioning system associated with a building for optimizing a plurality of building performance parameters in providing an environment with respect to a zone of the building, the method comprising: obtaining zone environmental condition information including zone temperature data associated to the zone, and cooling air temperature data associated to an air handling unit associated to the zone; obtaining, from a zone model generator, zone cooling load parameters associated to the zone with respect to a plurality of time periods and a zone thermal dynamic model; obtaining, from a scheduler, a sequence of optimal cool air supply rates with respect to a plurality of subsequent time periods with respect to the zone determined based on a multi-component cost function including a plurality of components relating to the plurality of building performance parameters; determining, based on the zone thermal dynamic model, a sequence of zone controller set-points corresponding to the sequence of optimal cool air supply rates with respect to the zone using the zone cooling load parameters, the sequence of optimal cool air supply rates, the zone temperature data and the cooling air temperature data associated to the air handling unit; and sending the sequence of zone controller set-points to a zone controller for controlling a temperature of the zone.

[Continued on next page]

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