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Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

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(12) **United States Patent**
Sulc

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(54) **SYSTEM FOR WIRELESS MESH NETWORK COMMUNICATION**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 51 days.

This patent is subject to a terminal disclaimer.

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(65) **Prior Publication Data**

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Related U.S. Application Data

(63) Continuation of application No. 14/168,443, filed on Jan. 30, 2014, now Pat. No. 9,179,498, which is a continuation of application No. 13/303,192, filed on Nov. 23, 2011, now Pat. No. 8,681,656.

(30) **Foreign Application Priority Data**

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(51) **Int. Cl.**

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H04W 40/38 (2009.01)

H04L 29/12 (2006.01)
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H04L 12/717 (2013.01)
H04L 12/753 (2013.01)
H04W 84/20 (2009.01)

(52) **U.S. Cl.**
CPC **H04W 72/0446** (2013.01); **H04L 61/35** (2013.01); **H04W 40/20** (2013.01); **H04W 40/38** (2013.01); **H04L 45/42** (2013.01); **H04L 45/48** (2013.01); **H04W 84/20** (2013.01)

(58) **Field of Classification Search**

None
See application file for complete search history.

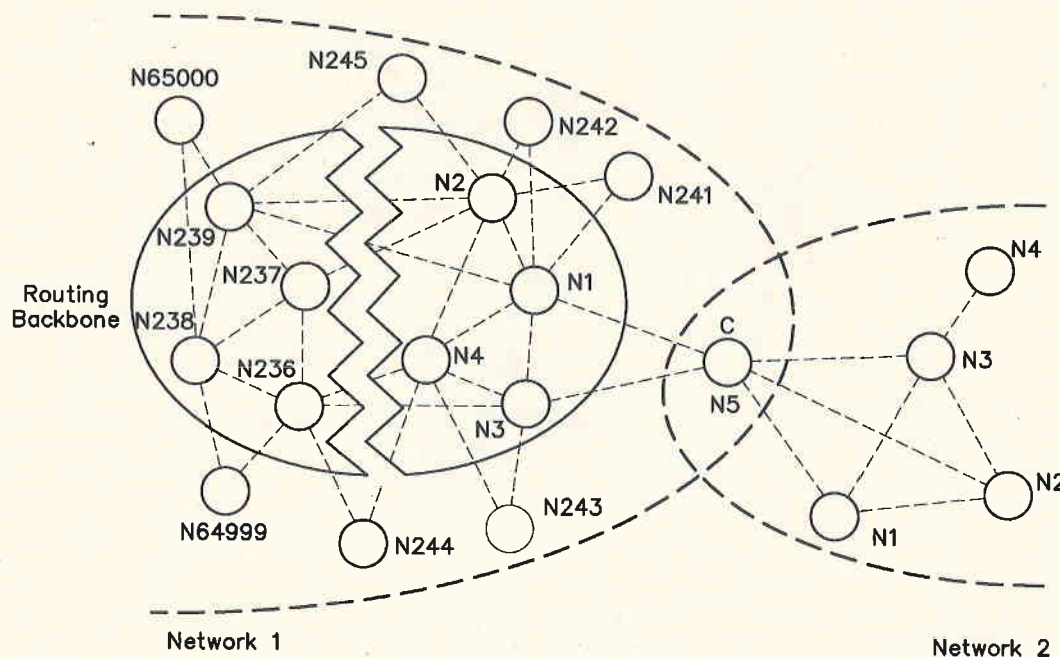
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(57) **ABSTRACT**

A general wireless mesh network of communication devices with packet message transmission, especially for telemetry and automation, includes at least a single control communication device and a set of slave communication devices. The control communication device searches in the network and assigns a virtual routing number to each slave communication device. The virtual routing number reflects a distance of the slave communication device from the control communication device, expressed by the number of routings, and is stored in the slave communication device. The slave communication device, for further routing of packets in the mesh network, uses time slots assigned according to the difference between said virtual routing number and the virtual routing number of the sender of a received packet. Packet routing is based on successive flooding of the virtual routing structure and time division multiplexing.

20 Claims, 4 Drawing Sheets



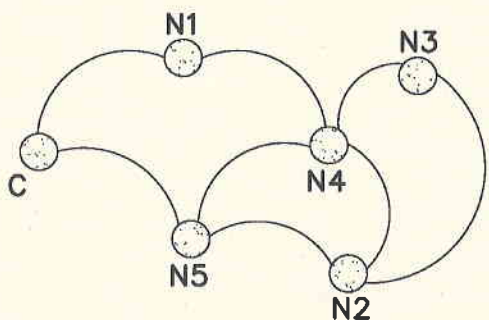


FIG. 1A

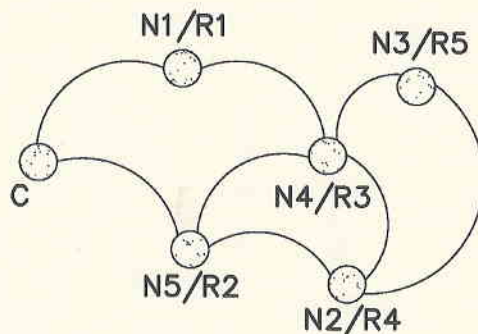


FIG. 1B

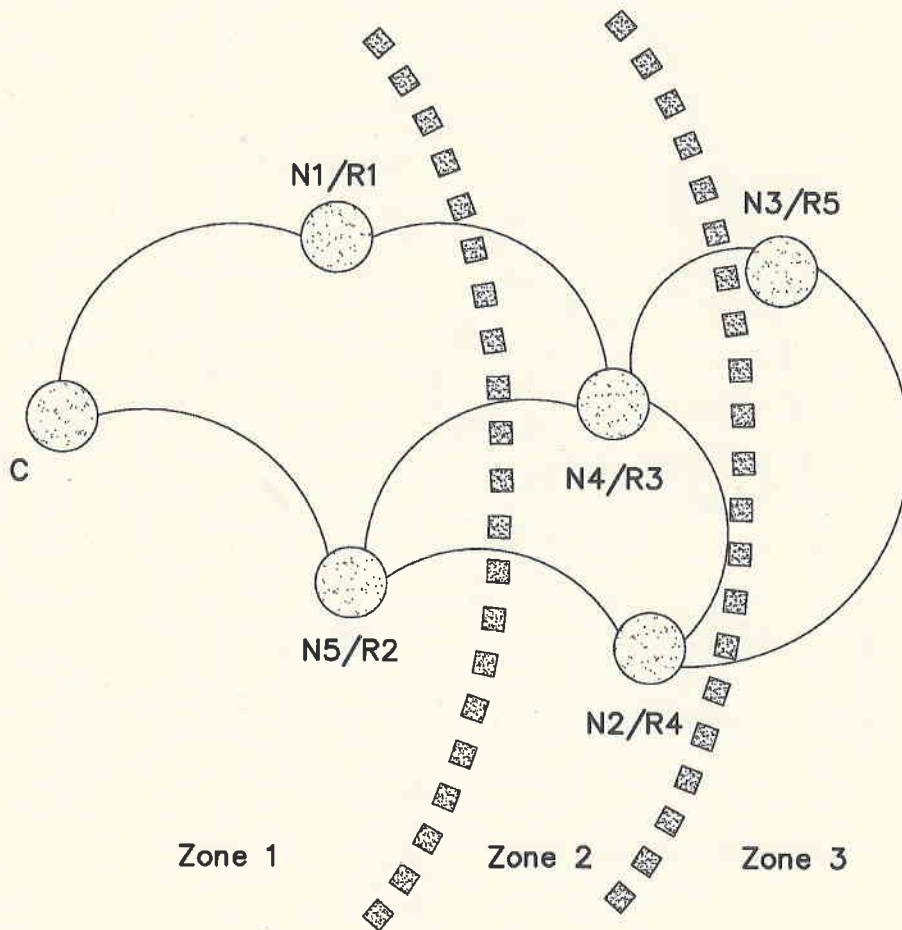


FIG. 1C

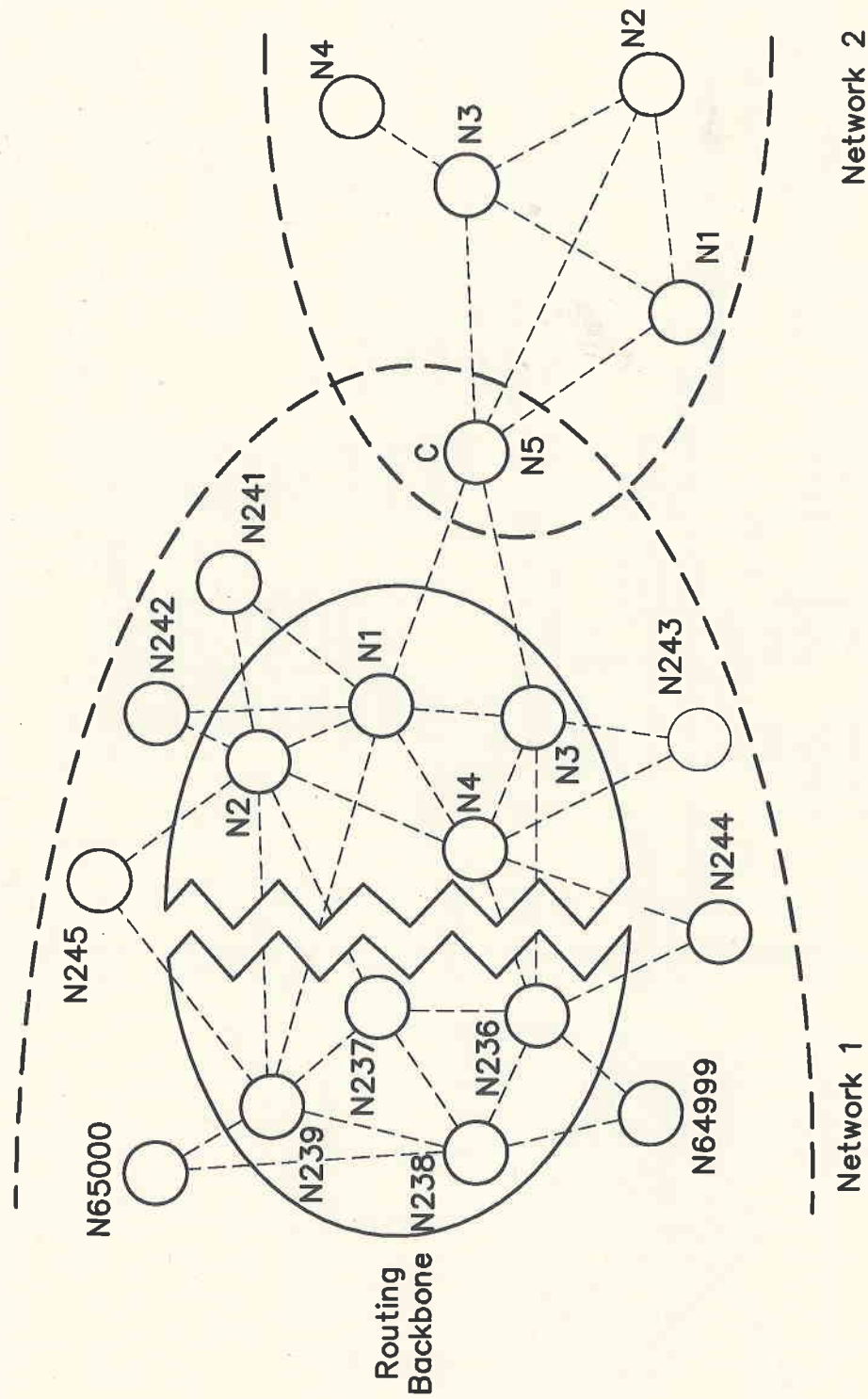


FIG. 2

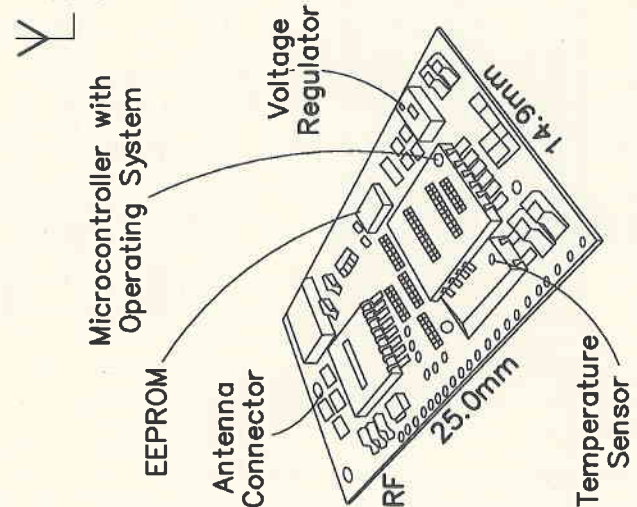
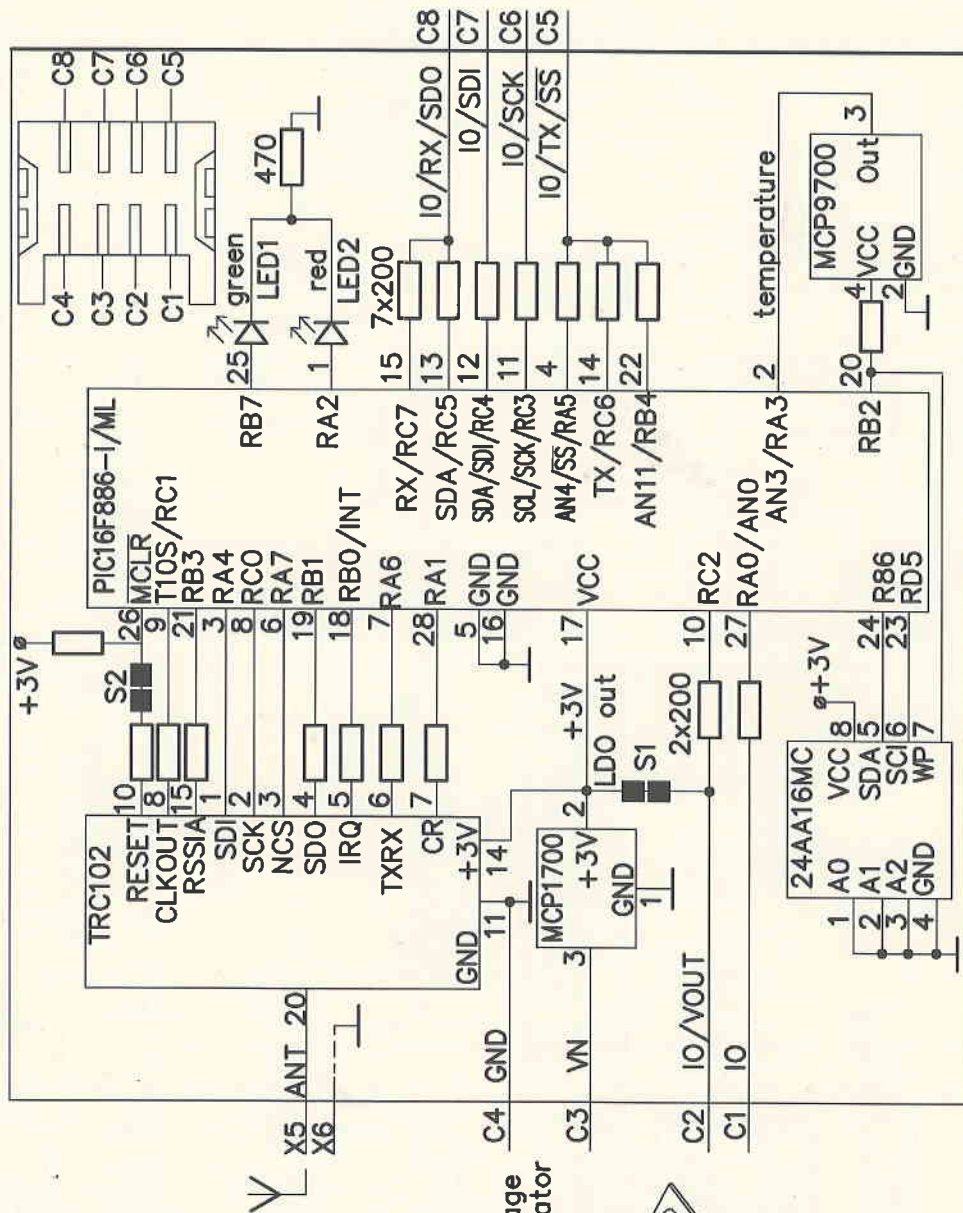
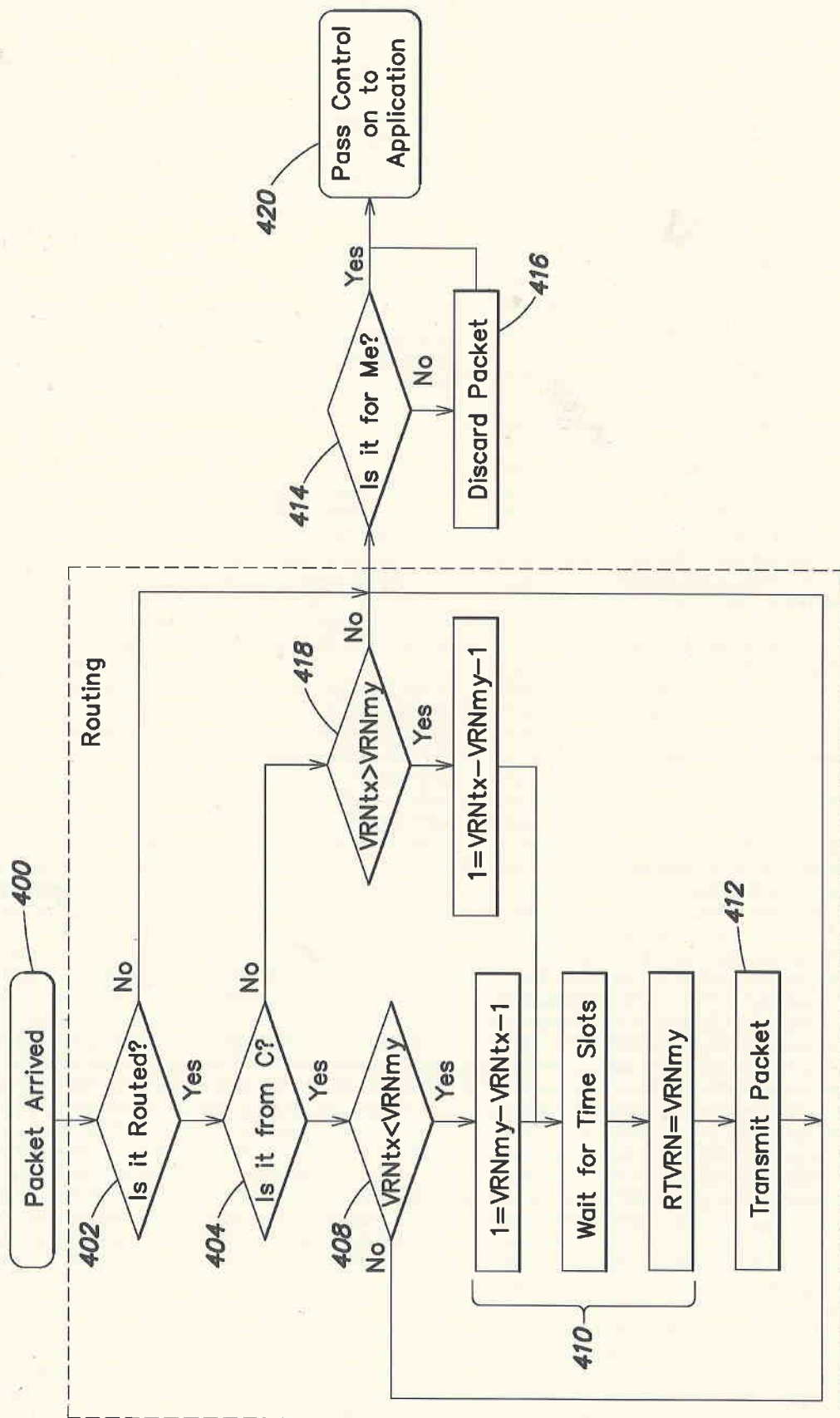


FIG. 3



Flow Chart of Routing

FIG. 4