interconnected as shown. It will be clear to those skilled in the art, after reading this specification, that in some alternative embodiments of the present invention, Upper Medium Access Control **310** is implemented either partially or entirely in software on a host computer's processor.

[**0032**] Circuitry **510** comprises standard combinational digital logic and/or analog electronic elements, as is well-known in the art. Combinational digital logic of circuitry **510** writes to and reads from memory **520** in well-known fashion, thereby providing state-based services. Circuitry **510**, in accordance with data flow diagram **400**, receives data via input **211**, performs the appropriate functions without hard real-time constraints and independent of Physical Control **230**, and outputs data and control information to Lower Medium Access Control **320** via output **311**.

[**0033**] Memory **520** is a random-access memory that stores data for circuitry **510** and circuitry **530**; it will be clear to those skilled in the art how to make and use memory **520**.

[**0034**] Circuitry **530** comprises standard combinational digital logic, which writes to and reads from memory **520** in well-known fashion, and/or analog electronic elements, as is well-known in the art. In accordance with data flow diagram **400**, circuitry **530** receives data and status from Lower Medium Access Control **320** via input **312**, performs the appropriate functions without hard real-time constraints and independent of Physical Control **230**, and outputs data to Logical Link Control **210** via output **212**.

[**0035**] **FIG. 6** depicts a device/control mapping for a wireless station **601**-*i* in accordance with the illustrative embodiment of the present invention. As shown in **FIG. 6**, wireless station **601**-*i* comprises microprocessor **602** for implementing the functions of Upper Medium Access Control **310** and Logical Link Control **210**. As will be clear to those skilled in the art, some other embodiments of the present invention might employ alternative device/control mappings (e.g., implementing Upper Medium Access Control **310** outside microprocessor **602**, etc.), and it will be clear to those skilled in the art how to make and use such embodiments.

[**0036**] **FIG. 7** depicts a block diagram of the salient components of Lower Medium Access Control **320** in accordance with the illustrative embodiment of the present invention. As depicted in **FIG. 7**, Lower Medium Access Control **320** comprises circuitry **710**, memory **720**, and circuitry **730**, interconnected as shown. It will be clear to those skilled in the art, after reading this specification, that in some alternative embodiments of the present invention, Lower Medium Access Control **320** is implemented either partially or entirely in firmware.

[**0037**] Circuitry **710** comprises standard combinational digital logic and/or analog electronic elements, as is well-known in the art. Combinational digital logic of circuitry **710** writes to and reads from memory **720** in well-known fashion, thereby providing state-based services. Circuitry **710**, in accordance with data flow diagram **400**, receives data via input **411**, performs the appropriate functions dependent on Physical Control **230**, and outputs data to Physical Control **230** via output **221**.

[**0038**] Memory **720** is a random-access memory that stores data for circuitry **710** and circuitry **730**; it will be clear to those skilled in the art how to make and use memory **720**.

[**0039**] Circuitry **730** comprises standard combinational digital logic, which writes to and reads from memory **720** in well-known fashion, and/or analog electronic elements, as is well-known in the art. In accordance with data flow diagram **400**, circuitry **730** receives data from Physical Control **230** via input **222**, performs the appropriate functions dependent on Physical Control **230**, and outputs data to Upper Medium Access Control **310** via output **312**.

[**0040**] It is to be understood that the above-described embodiments are merely illustrative of the present invention and that many variations of the above-described embodiments can be devised by those skilled in the art without departing from the scope of the invention. It is therefore intended that such variations be included within the scope of the following claims and their equivalents.

What is claimed is:

1. A method comprising:

receiving a service data unit at an Upper Medium Access Control; and

outputting a protocol data unit to a Lower Medium Access Control;

wherein said protocol data unit is based on:

(i) said service data unit, and

(ii) a first medium-access-control service that is independent of the state of a Physical Control providing service to said Lower Medium Access Control; and

wherein said Lower Medium Access Control provides a second medium-access-control service based on:

(i) said protocol data unit, and

(ii) the state of said Physical Control.

2. The method of claim 1 further comprising:

receiving a second protocol data unit at said Lower Medium Access Control from said Physical Control; and

outputting a second service data unit to said Upper Medium Access Control.

3. The method of claim 1 wherein said first medium-access-control service is transmit queueing.

4. The method of claim 1 wherein said second medium-access-control service is channel access.

5. A method comprising:

receiving a service data unit at an Upper Medium Access Control that provides a first medium-access-control service; and

outputting a protocol data unit to a Lower Medium Access Control that provides a second medium-access-control service;

wherein said first medium-access-control service is independent of any physical attribute of all signals transmitted or received by a Physical Control providing service to said Lower Medium Access Control; and

wherein said second medium-access-control service is dependent on a physical attribute of a signal transmitted or received by said Physical Control.