CLAIMS

1. A self-cleaning toilet system comprising:

(a) a plurality of toilet seats, each toilet seat including a toilet bowl, a seat portion configured to rest on the toilet bowl, a cover configured to move between a first state and a second state, a control mechanism configured to move the cover between the first state and the second state employing a drive motor, and a cleaning assembly;

(b) a first time-of-flight sensor mounted on the cover of each toilet seat, wherein the first time-of-flight sensor is positioned to detect a user approaching the toilet seat; and

(i) wherein, upon detecting the user approaching the toilet seat, the first time-of-flight sensor sends a signal to the control mechanism to move the cover to the first state to expose the seat portion to the user; and

(ii) wherein, when the cover is in the first state, the seat portion is exposed to the user approaching the toilet seat;

(c) a second time-of-flight sensor mounted on the seat portion of each toilet seat, wherein the second time-of-flight sensor is positioned to detect the user departing the toilet seat,

(i) wherein, upon detecting the user departing the toilet seat, the second time-of-flight sensor sends a signal to the control mechanism to move the cover to the second state; and

(ii) wherein, when the cover is in the second state, the cleaning assembly is positioned to clean the seat portion; and

(d) a remote processor including an analytics engine configured to receive sensor input from each of the toilet seats and one or more databases storing data relating to the toilet seat.

2. The system according to claim 1:

wherein the analytics engine is an artificial intelligence engine configured to receive input from the toilet seat and fine tune each of the toilet seats; and

wherein the fine tuning includes at least one of adjusting a cleaning duration and adjusting a pressure of cleaning water jets.

3. The system according to claim 1, wherein the data relating to the toilet seat stored by the one or more databases includes at least one of location data, inventory data, environmental data, and component operation data.

4. The system according to claim 3, wherein the environmental data includes at least one of temperature data and ambient lighting data.

5. The system according to claim 1, further comprising at least one of a central monitoring system, a maintenance scheduling system, and a fault/failure detection system.

6. The system according to claim 5:

wherein the at least one of the central monitoring system, the maintenance scheduling system, and the fault/failure detection system is accessible via a plurality of mobile devices; and

wherein each mobile device is one of a mobile phone and a tablet personal computer (PC).

7. The system according to claim 1, further comprising a user interface configured to collect feedback from the user.

8. The system according to claim 1, wherein at least a portion of the cleaning assembly is housed within the cover.

9. The system according to claim 8, wherein the cleaning assembly comprises a plurality of nozzles disposed around the periphery or perimeter of the cover.

10. The system according to any one of the preceding claims, wherein the cover is joined to the seat portion via a shoulder portion, the shoulder portion shaped and dimensioned to house the control mechanism.

11. The system according to claim 1, wherein the control mechanism comprises a liquid inlet to introduce pressurized liquid through the plurality of nozzles.

12. The system according to claim 11, wherein the control mechanism comprises an air turbine to introduce pressurized air through the plurality of nozzles.

13. The system according to any one of the preceding claims, wherein the cover comprises a seal gasket for sealing any gap between the cover and the seat portion when the cover is in the second state.