CLAIMS

1. A floor mopping system for an autonomous cleaning apparatus, comprising a mop roller assembly including a mop roller and a drive mechanism for rotatably driving the mop roller about a longitudinal axis thereof, the mop roller assembly comprising a mop roller housing for accommodating the mop roller and the drive mechanism,

wherein the mop roller assembly is supported on a suspension assembly comprising an adaptive suspension mechanism for providing at least 3 degrees of movement for the mop roller assembly, the adaptive suspension system comprising one or more resilient supports interconnected to the mop roller housing for resiliently supporting the mop roller assembly;

wherein the adaptive suspension system comprises a support plate positioned in a generally parallel adjacent relationship to a top surface of the mop roller housing, the resilient support being located between the support plate and top surface thereof; and

wherein the resilient support comprises a spherical bearing block respectively mounted on the support plate and the top surface, a coil spring located between the support plate and the top surface, and a guide pin extending through the spherical bearing blocks and the coil spring for locating the coil spring in position.

2. A floor mopping system according to claim 1, wherein the support plate is generally rectangular in shape, and wherein a said resilient support is respectively located at or adjacent each corner of the support plate.

3. A floor mopping system according to any one of the preceding claims, the suspension assembly further comprising a positioning mechanism for positioning the mop roller assembly between an elevated non-operational position, and a lowered operational position.

4. A floor mopping system according to claim 3, wherein the positioning mechanism comprises an actuator drive means comprising a drive screw for moving the mop roller assembly between said elevated and lowered positions.

5. A floor mopping system according to any one of the preceding claims, wherein the drive mechanism comprises a drive motor, a mop roller drive assembly and a belt drive assembly interconnecting the drive motor and mop roller drive assembly, the mop roller drive assembly being interconnected to the mop roller.

6. A floor mopping system according to any one of the preceding claims, further comprising a cleaning assembly for the mop roller.

7. A floor mopping system according to claim 6, wherein the cleaning assembly comprises a scrapper member in contact with the mop roller for extracting water therefrom.

8. A floor mopping system according to claim 7, wherein the cleaning assembly further comprises a tray member for receiving the extracted water, and drainage means for removing the water collected by the tray member.

9. A floor mopping system according to any one of the preceding claims, the mop roller assembly further comprising a static mopping pad having a removable mopping pad mounted thereon.

10. A floor mopping system according to any one of the preceding claims, wherein the mop roller is removably mounted within the mop roller assembly.

11. An autonomous cleaning apparatus comprising a floor mopping system as claimed in any one of the preceding claims.

12. An autonomous cleaning apparatus according to claim 11, comprising an electronic control system for controlling the operation of the floor mopping system, and a water supply system for supplying clean water to the floor mopping system and for collecting dirty water from the floor mopping system

13. An autonomous cleaning apparatus according to claim 11, wherein the control system controls an interval of the supply of clean water to the floor mopping system.