

## **Hospital nurse following robot: hardware development and sensor integration**

### **Abstract**

Hospital nurse regularly bring her instrument to the patient using cart. They need to push or pull the cart to the patient bed and bring it back many times in a day. This can be tiresome for nurses because they need to treat many patients in the hospital. This research is mainly to solve this problem by constructing a mobile robot for nurses that is able to follow and carry the medical equipment and at the same time perform obstacle avoidance. The designed robot has ability to move in and out at constricted space and is able to avoid any obstacles either static or dynamic. This robot can carry a load of 20 kg and used dc geared motor to move. The mobile platform is able to rotate at axial axis with the construction of special wheel and the placement of the motor. A suitable ultrasonic sensor bank is selected so that robot can detect obstacle around the mobile platform and avoid the obstacle. The robot control and obstacle avoidance system is designed by adopting the facilities of Basic ATOM microcontroller for better performance.

**Keywords;** Hospital nurse following robot, Hardware development, Sensor integration, Mobile hospital robot, Obstacle avoidance, Ultrasonic sensor bank