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QA—B  
Product FSD

# AUTOMATIC TOILET PAPER DISPENSER

## FUNCTIONAL SPECIFICATION DOCUMENT

### PURPOSE

The "Automatic Toilet Paper Dispenser", hereafter referred to as ATPD, will greatly benefit users of bathrooms in public and private facilities. By utilizing sophisticated sensor technology, it will provide a highly clean method of dispensing toilet paper to the end user. It will not take up any more room than a conventional toilet paper dispenser and will come in two styles. The first will be a low-profile home model and the second will be ruggedized for use in public facilities.

### DESIGN CONSIDERATIONS

The product requirements were determined by assessing the bathroom situation and seeing everything else automated except toilet paper. It is arguably one of the most germ-ridden areas of a bathroom. By realizing this and applying existing ideas to toilet paper dispensers, we came up with the ATPD. Since toilet paper dispensers are fairly common, there aren't many requirements to what it has to do.

### PRODUCT SPECS

**Dimensions** (*Width x Length x Height*): 5.5" X 4.5" X 2.5"

**Power Source:** 9V DC (*via 9 volt battery mounted behind user accessible cover*)

**Roll Capacity:** 1 (*Manual Roll Replacement*)

## FUNCTIONAL REQUIREMENTS

### MOUNTING AND POWER

The ATPD is powered by a 9 volt battery which will be user accessible by removing the toilet paper from the Main Unit and lifting a battery cover on the back plate between the two protrusions which hold the Toilet Paper Roll Rod (TPRR) to the Main Unit. It will mount to the wall using the standard toilet paper holder mounting points in any bathroom.

### PRIMARY FUNCTIONALITY

When first powered on, the ATPD will remain in a low-power state that polls the toilet paper feed sensor on the underside of the device. When a user places their hand underneath the device, the sensor will recognize there is a hand underneath and trigger the next step. The toilet paper dispenser motor will turn on and dispense a useful (7+ squares) amount of toilet paper to the user and then turn off the motor. After the toilet paper is finished dispensing, the device will return to the low power state it originally started in.

### TOILET PAPER REPLACEMENT PROCEDURES

To replace the toilet paper in the home model, you will need to lift up the top cover and pull the old roll out by pulling the two pieces of the TPRR together and sliding it out of the Main Unit. The user will then remove the old roll from the TPRR and slide the new roll onto the rod. Reinsert the TPRR into the Main Unit and align the ends of it until they “pop” into the sockets on the inside walls of the Main Unit.

EXAMPLE IMAGERY

