State Diagram of the CRS

The whole process is represented in the state machine of the cash register system where the initial state of the system is off. Powering on the system leads to the Power On Self Test (POST) state, which checks all relevant functions and overall integrity of the cash register system. Failure in POST turns the system to the out of service state awaiting maintenance, otherwise the system is in a standby state awaiting the check out process.

The process of check out, triggered by the plugging-in of the cash drawer, involves authorization of the cashier with id and password. As soon as the scanning of the first product starts, a new order is created and items are lined up after retrieving their information. Processing a EAN Code is the primary method to identify items, if no EAN is readable the system will treat the input as an EPC Code. In the event of scan error due to barcode or rf-tag error, the cashier performs the procedure of manually entering the barcode and/or product information. Further scanning of items just adds up in the existing order and stays in the operating state if no further scanning is done.

One new order can be created while the initial order is not yet finished. In this case, the initial order is paused and every newly identified item is added to the second order. The second order needs to be finished or canceled before the system can go back to processing and changing the initial paused order. Once the last article signal is triggered, the system expects a payment. The payment method is chosen by the customer. Payment receipt is generated and the order is finished upon approval of payment.