

Documentation of the DIR, verification methods and context diagram

Preamble:

Certain DIR's in the provided document are only relevant in later development stages (for example the Reliability DIR's). We shall not discuss these DIR's in the following Documentation as they are not of importance yet.

In this document the "Cashregister System" shall be abbreviated as CSR.

IF3e:

The DIR „B1a“ dictates that a user must log himself into the CSR after inserting his/her cash drawer. To realize this the CSR requires knowledge of the log-in details of the user. The log-in list of all employees of the supermarket will be provided by the ERP (likewise for the price list). To realize this we extended the ERP DIR's with the DIR "IF3e".

IF10a – IF10b (Cash Drawer):

Due there being many different cash drawer models with different connection types, the conditions for the DIR's differ. Since several external devices like the scanner already communicate with the CSR via RS232 we have added a DIR for the cash drawer based on the scanner DIR (as an example since we have not made a decision on the real hardware yet to be used). The real connection type has yet to be determined and thus meaning the DIR can be subject to changes if for example a cash drawer with an USB connection is chosen.

IF10a:

The CSR compares the cash drawer ID with the user login, the CSR thus needs to read out the ID for the cash drawer. After research pertaining to the hardware we have come to the conclusion, that many cash drawers have their ID's set by their jumper connection. To allow the CSR to read them out we have extended the DIR with a data transfer DIR(similarly to the Scanner)

IF10b:

After extensive research concerning the hardware to be used, we have come to the conclusion that the cash drawer is an external device similar to the scanner. Due the cash drawer also utilizing a RS232 connection it requires to be configured, thus requiring setup parameters.

Further Considerations:

As every CSR utilizes a display, to display information of purchases or is used to take inputs of the cashier we have considered of adding it as part of our system concept. Several DIR's (especially DIR B2) point towards display options for the display. The cashier, according to the DIR, should be able to change the color, language or get online help.

After further discussion within the group and discussions with the client, we have come to the conclusion to not add the display, as part of the system concept. The display is part of the hardware system (the computer) and lies outside of the system borders of the cash register system.

The same argument is used for a potential printer to print out the invoice for the customer. After further research into the hardware and discussions with the client we have concluded that the printer is directly connected to the CSR computer via drivers. The printer only receives a print command from the CSR, the rest will be processed by the CSR computer and the printer drivers. The printer thus lies outside the system borders.

After further research we have concluded that the conveyor belt is it's own separate system. The CSR only transfers the operating commands like distance value and speed value to the conveyor belt controller. Other known functions like the control via light-sensitive barrier are controlled by the conveyor belt controller. Thus the conveyor belt in its entirety will not be further modeled in the CSR.

Verification method:

As we don't have a working program yet, all verification methods and DIR's cannot be tested on their correct implementation.

Context Diagram:

The context diagram has remained the same as depicted in the provided task. There have been general considerations of adding a printer or display to the context diagram but these thoughts were discarded after further consideration.

For an in-depth explanation why the printer and display were not added to the context diagram see „Further Considerations“