SOUND CONCEPT OF THE SOFTWARE ARCHITECTURE

The Design of a sound concept based on the general procedure for the design of a software architecture from the lecture.

Our software architecture is based on the "client/server" architecture principle. This architecture principle has the following peculiarities, which are reflected in our system:

- Clients request services from servers. (Obtain information from ERP system)
- Servers provide services. (ERP system takes over all administrative tasks)

The advantage of this software architecture is that jobs always originate from the client, i.e. a server does not need to know its clients or only during the service.

On the following pages these points of the software architecture are discussed:

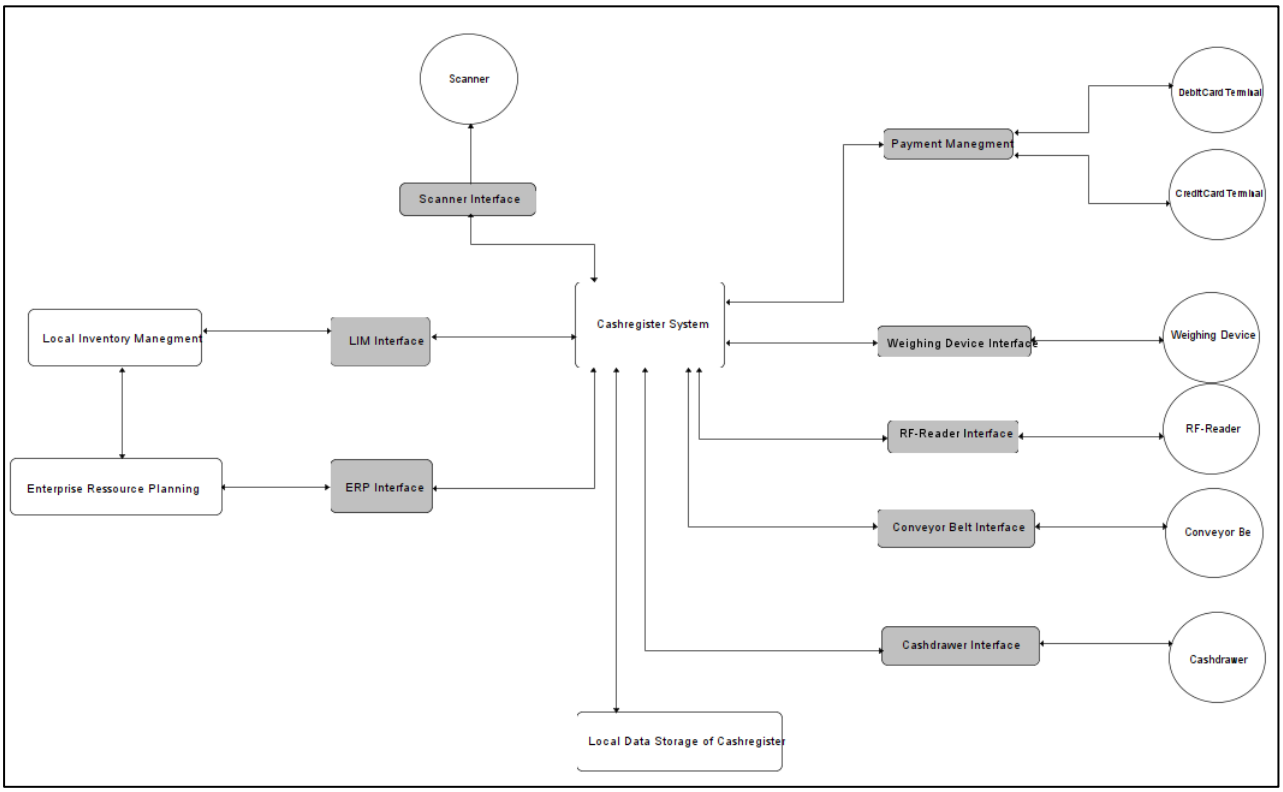
1. Structuring of the software system into a finite number of subsystems according to defined design principles (mapping of the domain-oriented system design to subsystems
2. Definition of communication and activation mechanisms for subsystems)
3. Modeling of sequence control (centralized control, decentralized control)

1.Structuring of the software system into a finite number of subsystems according to defined design principles (mapping of the domain-oriented system design to subsystems)

The central system in our software architecture is the "Cash Register System". The following subsystems were structured around the CRS:

- Local Inventory Manegment (LIM)
- Enterprise Ressource Planning (ERP)
- Convoyer Belt
- Cashdrawer
- Weighting device
- IF-Scanner
- RF-Scanner
- Creditcard Terminal
- Debitcard Terminal

The relationships between the central system (CRS) and the subsystems look graphically as follows:



2.Definition of communication and activation mechanisms for subsystems

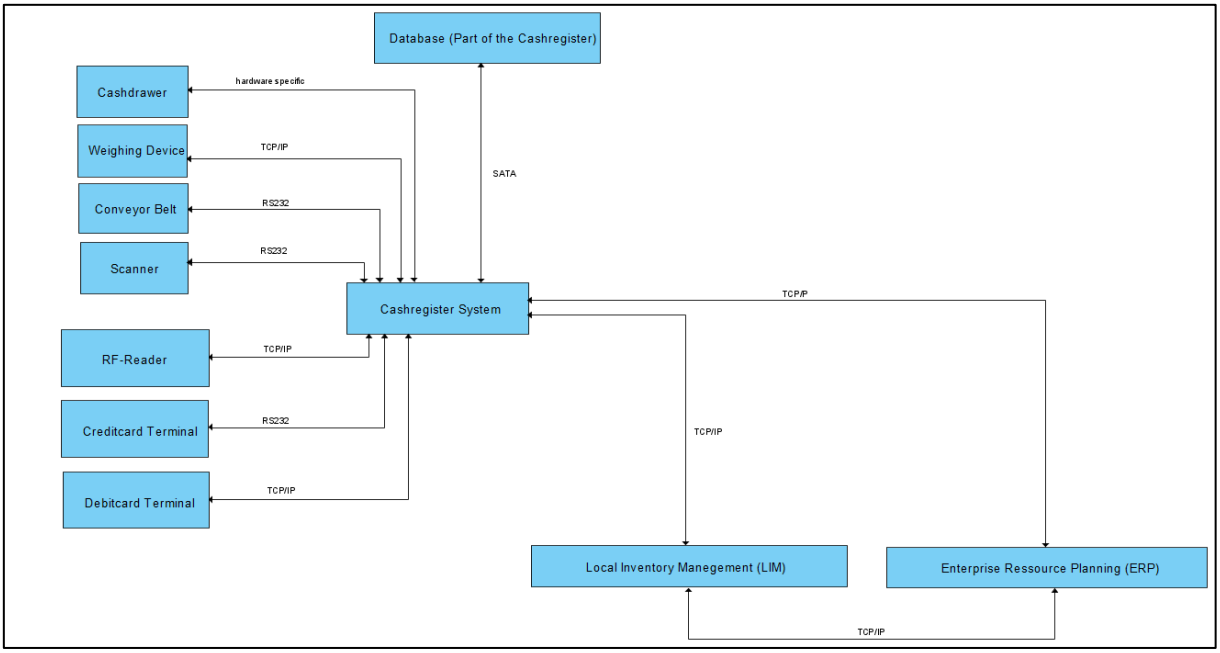
The communication of the individual subsystems with the CRS is shown below.

subsystem	communication interface
Local Inventory Manegment (LIM)	TCP/IP
Enterprise Ressource Planning (ERP)	TCP/IP
Convoyer Belt	RS232
Cashdrawer	RS232
Weighting device	TCP/IP
IF-Scanner	RS232
RF-Scanner	TCP/IP
Creditcard Terminal	RS232
Debitcard Terminal	TCP/IP

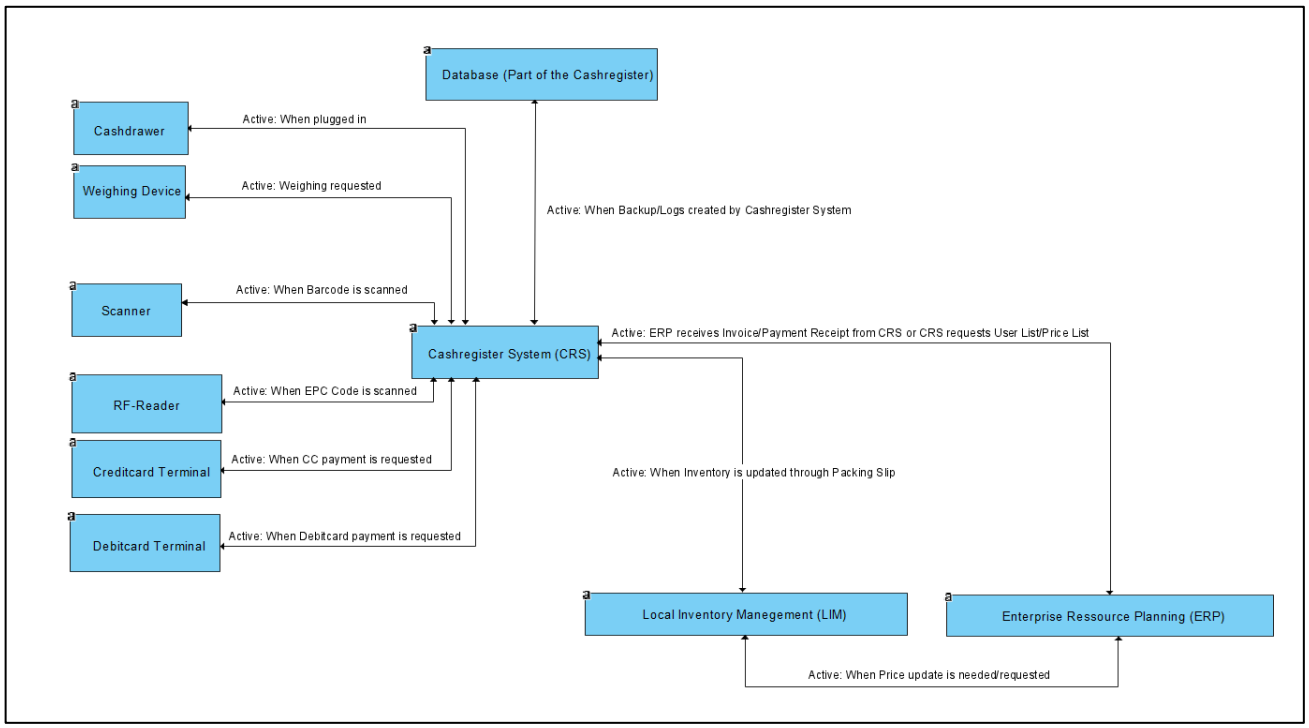
The selection of communication interfaces is based on information from the DIR's and on considerations regarding the functionality of the CRS. However, it should be noted that the selection of interfaces is only preliminary. For the later course of the project, the interfaces are subject to change due to feasibility or functionality.

It should also be noted that the "Database" is not a proper subsystem, since it is part of the CRS. However, because it has a relevant communication interface, it has been included in our software architecture.

The following diagram shows the relationships between the subsystems and the CRS, as well as the communication interfaces.



Another point of the software architecture is the activation and deactivation scheme of the subsystems. The following diagram illustrates which triggers activate the subsystems. Also in this diagram it must be considered that the "Database" is not a real subsystem.



3.Modeling of sequence control (centralized control, decentralized control)

Regarding the current status of the project, it can be said that a central control system is used in our system. This is made clear by the fact that all processes in our system are handled by a central coordinating instance. This central instance is the "Cash Register System". It coordinates and activates all subsystems. The activation scheme of the subsystems can be seen above in the documentation. A central term to describe the central control is the "tree structure", which is clearly visible in our model.