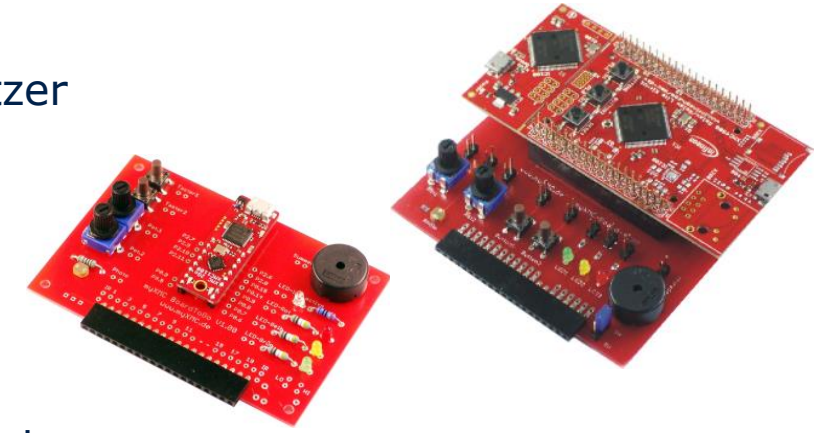
SiSy® XMC

full cycle software engineering mit der UML

XMC Developer Day 2014, München

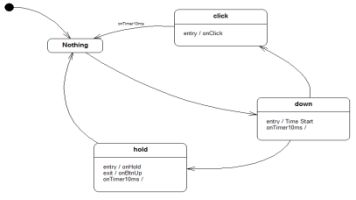
Laser & Co. Solutions GmbH

- gegründet 1991, Sachsen, 15 Mitarbeiter,
- mehr als 20.000 Kunden und Werkzeugnutzer
- Produkte:
  - Modellierungs und UML Tool SiSy®
  - Mikrocontroller Evaluierungsboards
  - Lernsysteme und Zubehör
- Partner:
  - Infineon, Segger, Willert, HERA Laborsysteme, …
  - CONRAD, ELV, Christiani, Silica,
  - www.sisy.de , www.myXMC.de, www.laser-co.de , …
- Kontakt:
  - Alexander Huwaldt, a.huwaldt@sisy.de
  - Toralf Riedel, t.riedel@sisy.de

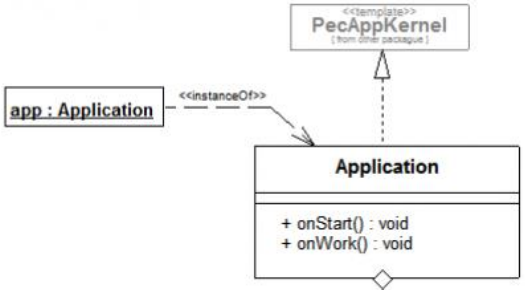


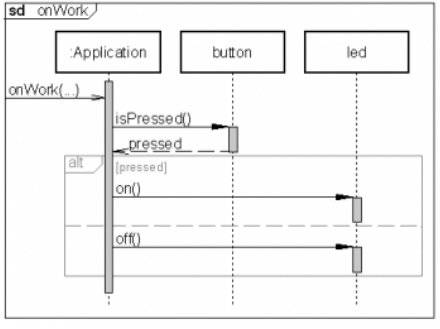
SiSy® XMC

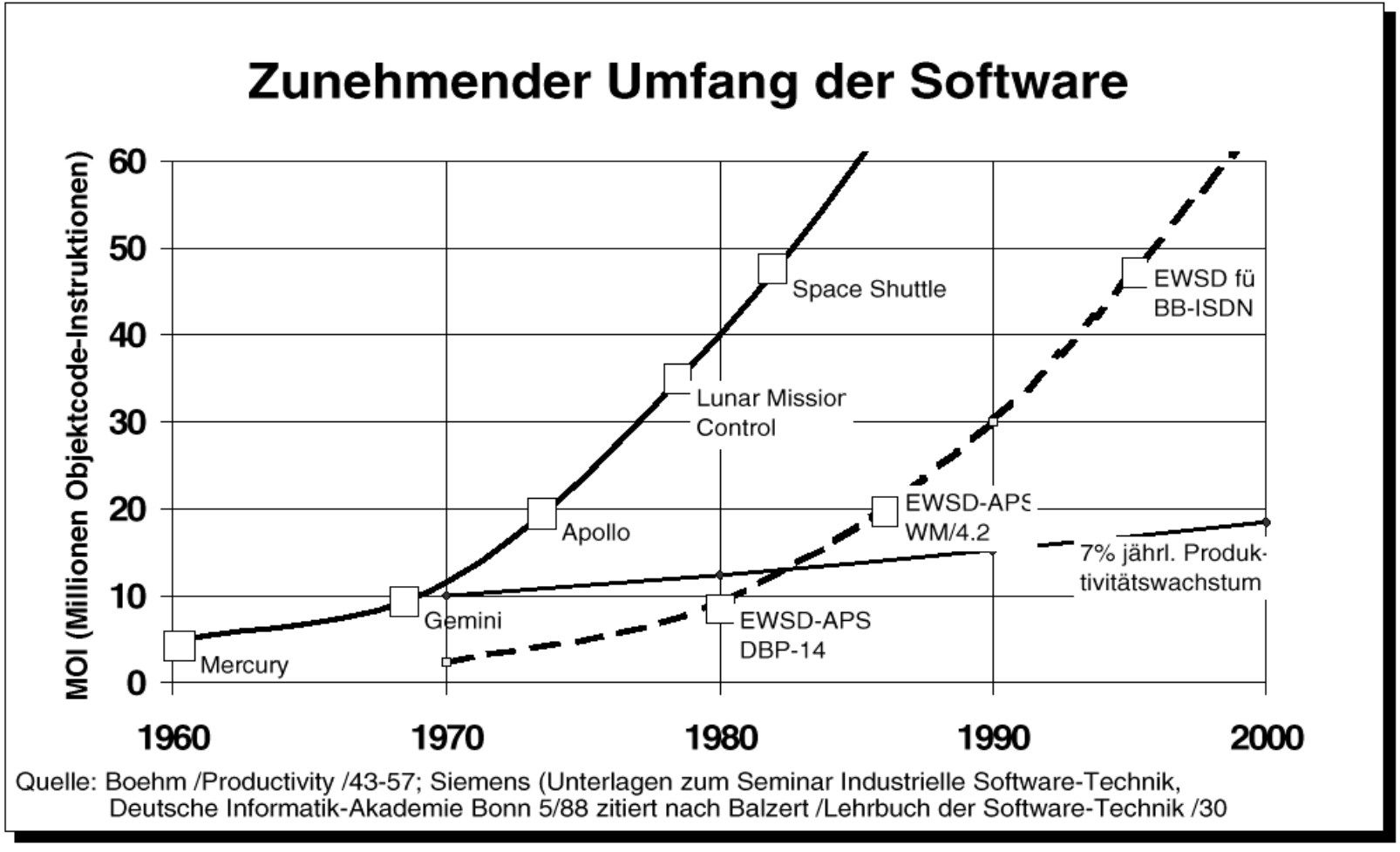
- UML Werkzeug für den gesamten Entwicklungszyklus
- Quelltextgenerierung unter anderem aus
  - Klassendiagrammen
  - Zustandsdiagrammen
- just in time Generiertung von Sequenzdiagrammen
- Quelltextvervollständigung und Syntaxeinfärbung
- Model-Level-Debugging
- Klassenbibliotheken für
  - low level driver,
  - portable middleware,
  - online libstore
- und vieles mehr...




```
////////////////////////////////////////////////////////////
// Diese Quellcodedatei wurde automatisch erzeugt.
// SiSy UML CodeGenerierung
//
////////////////////////////////////////////////////////////

///<ObjektNummer>897</ObjektNummer> GoToSiSy:d:896

#if !defined(h_Application)
#define h_Application

#include <stddef.h>
#include "xmc1200.h"
#include "Led.h"
#include "PecAppModul.h"

#include "pec_Inout.h"

#include <stddef.h>
#include <stdlib.h>
#include "xmc1200.h"
#include "myArm.h"

class Application : public PecAppModul
{

public:

    //  onWork()   GoToSiSy:d:896|o:898
    void onWork();

    //  onStart()   GoToSiSy:d:896|o:899
    void onStart();

    //  onSysTick()  GoToSiSy:d:896|o:897
    void onSysTick();

    //  main()  GoToSiSy:d:896|o:897
    void main();

    //  Anzahl der Sekunden seit Systemstart
    uint32_t systimeSec;
    //  0...99 als Bruchteil einer Sekunde
    uint8_t systimeMsec10;
    Led led;
```



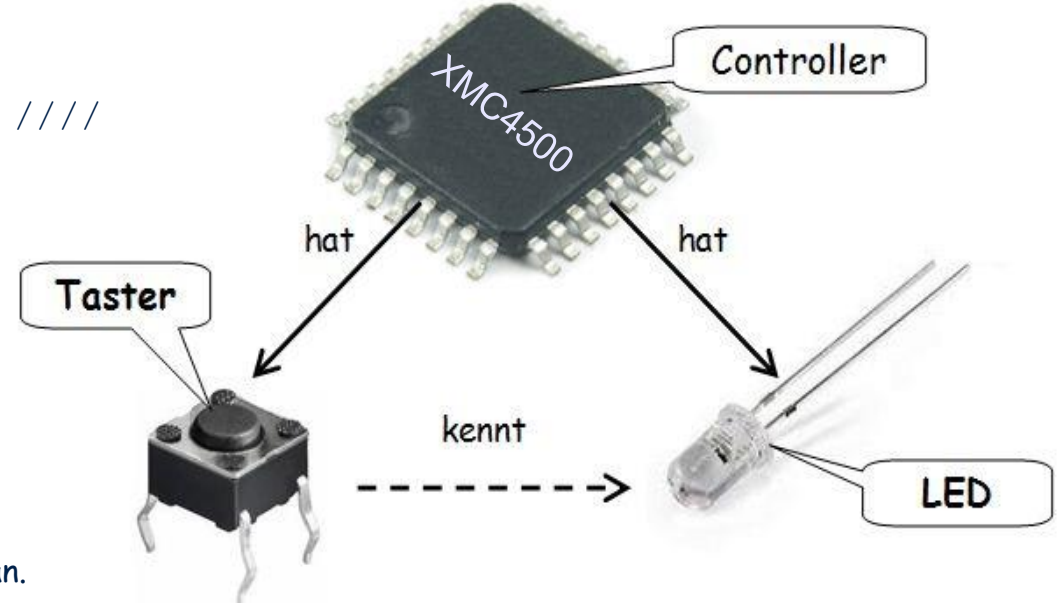




Quelle: Boehm /Productivity /43-57; Siemens (Unterlagen zum Seminar Industrielle Software-Technik, Deutsche Informatik-Akademie Bonn 5/88 zitiert nach Balzert /Lehrbuch der Software-Technik /30

UML Unified Modeling Language

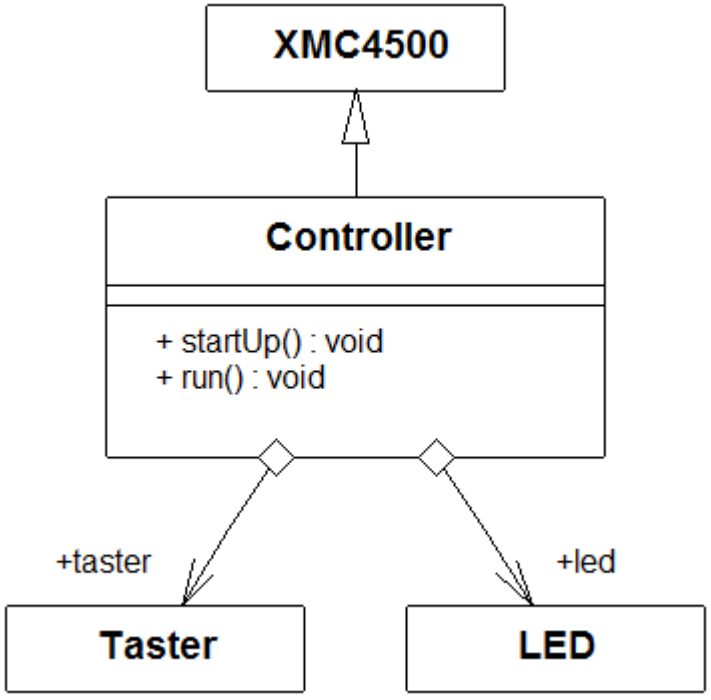
```
// "klassische" Schreibweise /////////////////
PORT0->IOCR4 &= ~0x0000f800UL;
PORT0->IOCR4 |= 0xC0U << 8;
PORT0->OMR = 0x00200020UL;

// objektorientierte Schreibweise ////
Led led;
led.config(PORT0,5);
led.on();
```

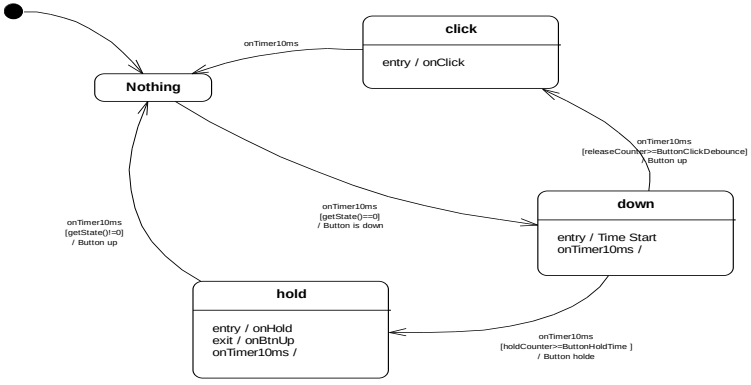


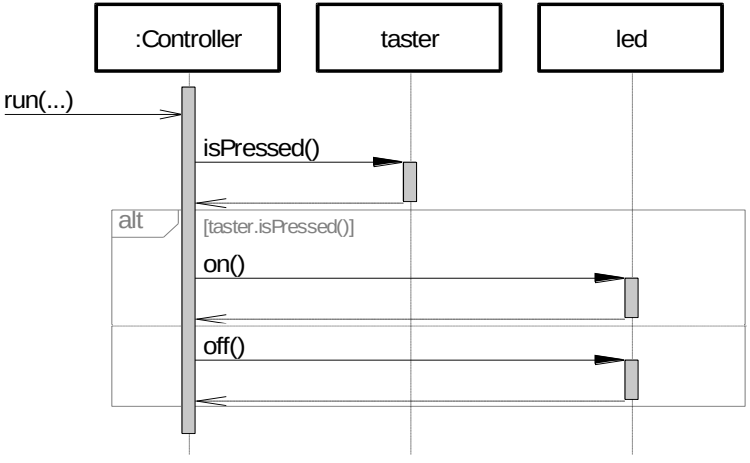
Wenn der Taster gedrückt ist schalte die LED an.
If the button is pressed the LED will turn on.

```
if ( button.isPressed() ) led.on();
```

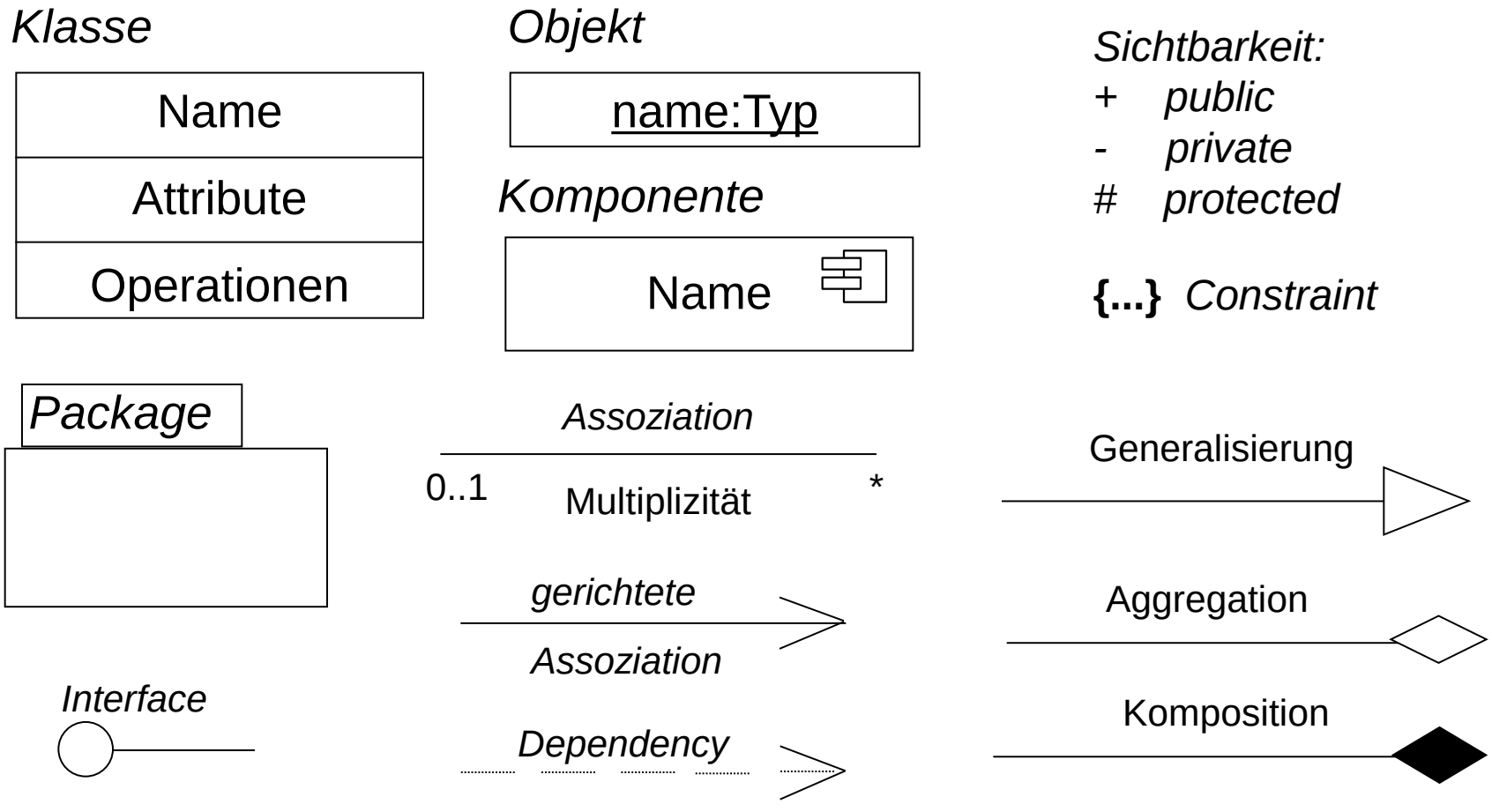
UML Unified Modeling Language



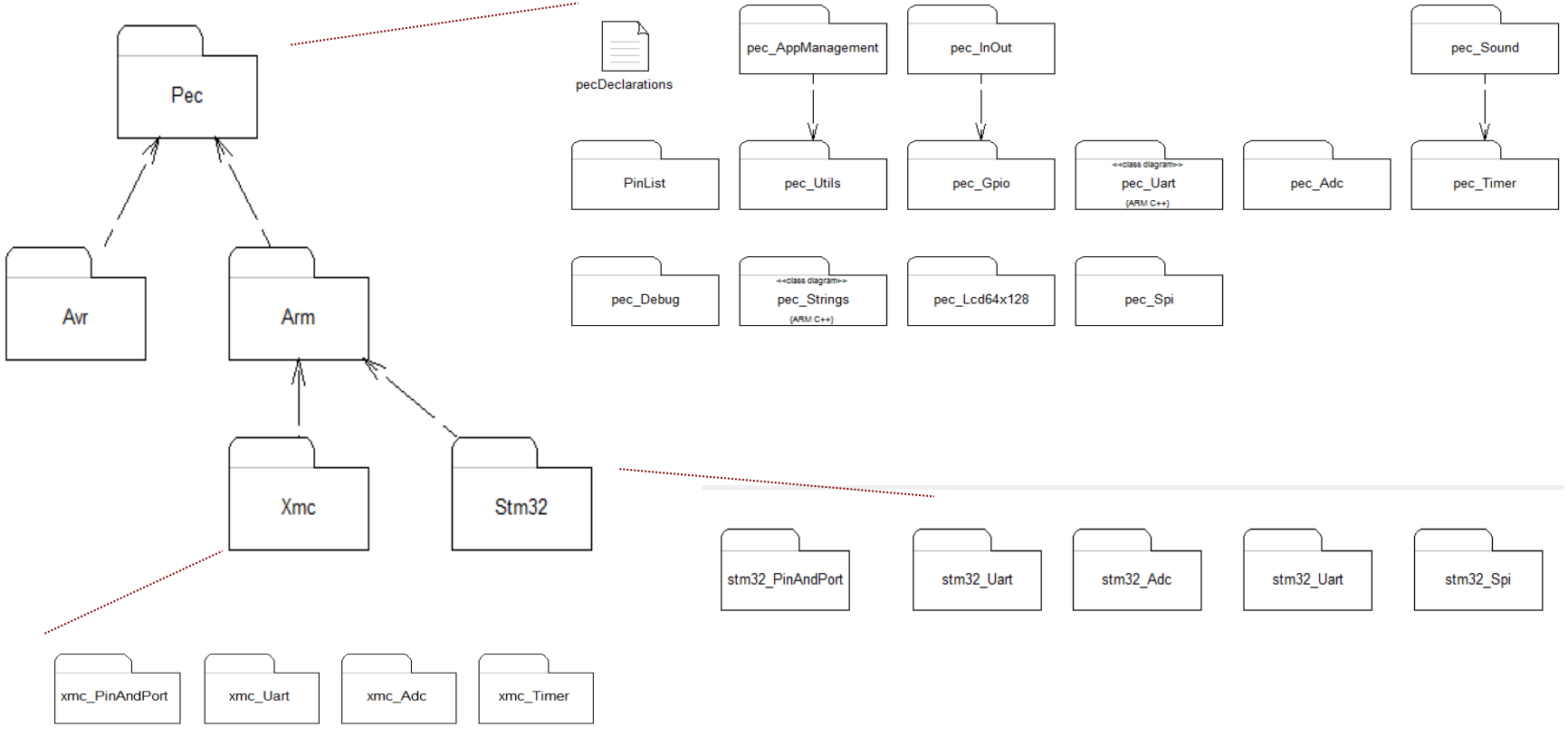




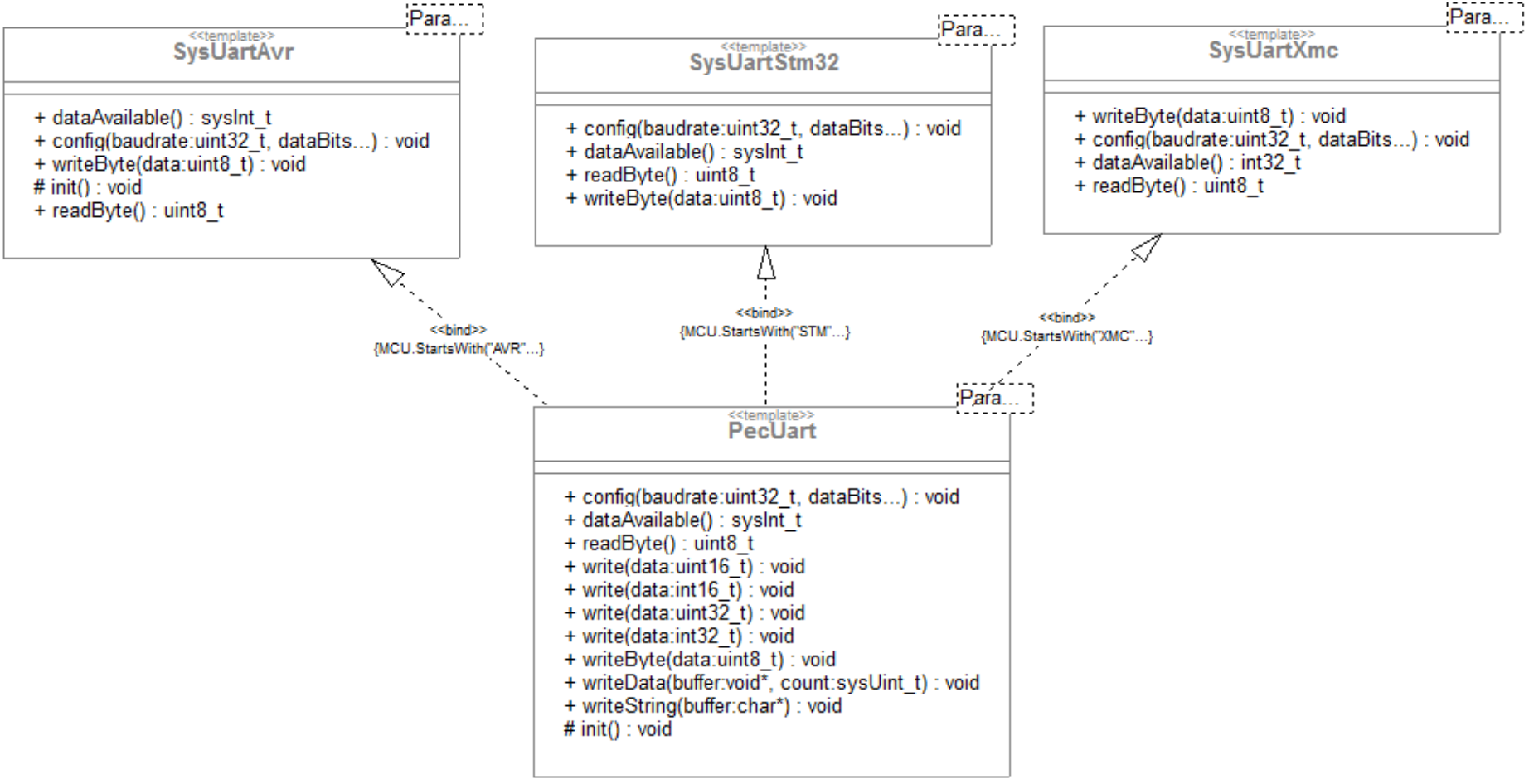
UML Unified Modeling Language, Strukturmodell



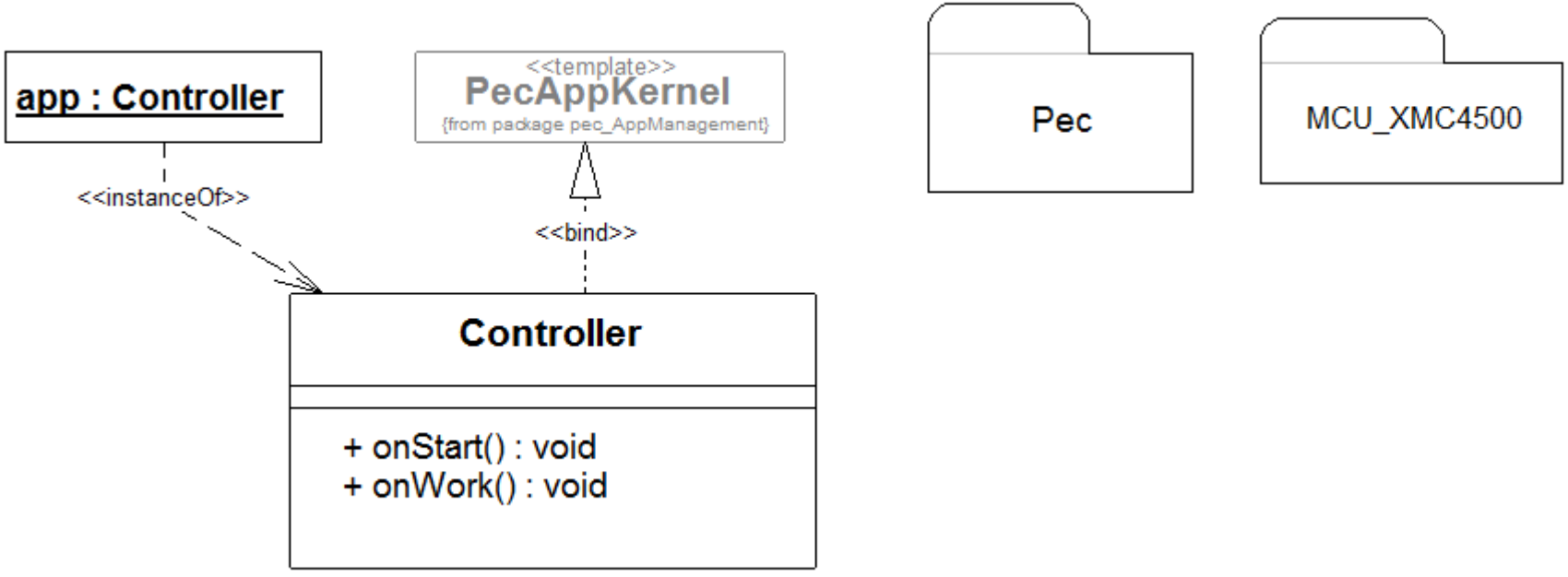
PEC Portable Embedded Classes



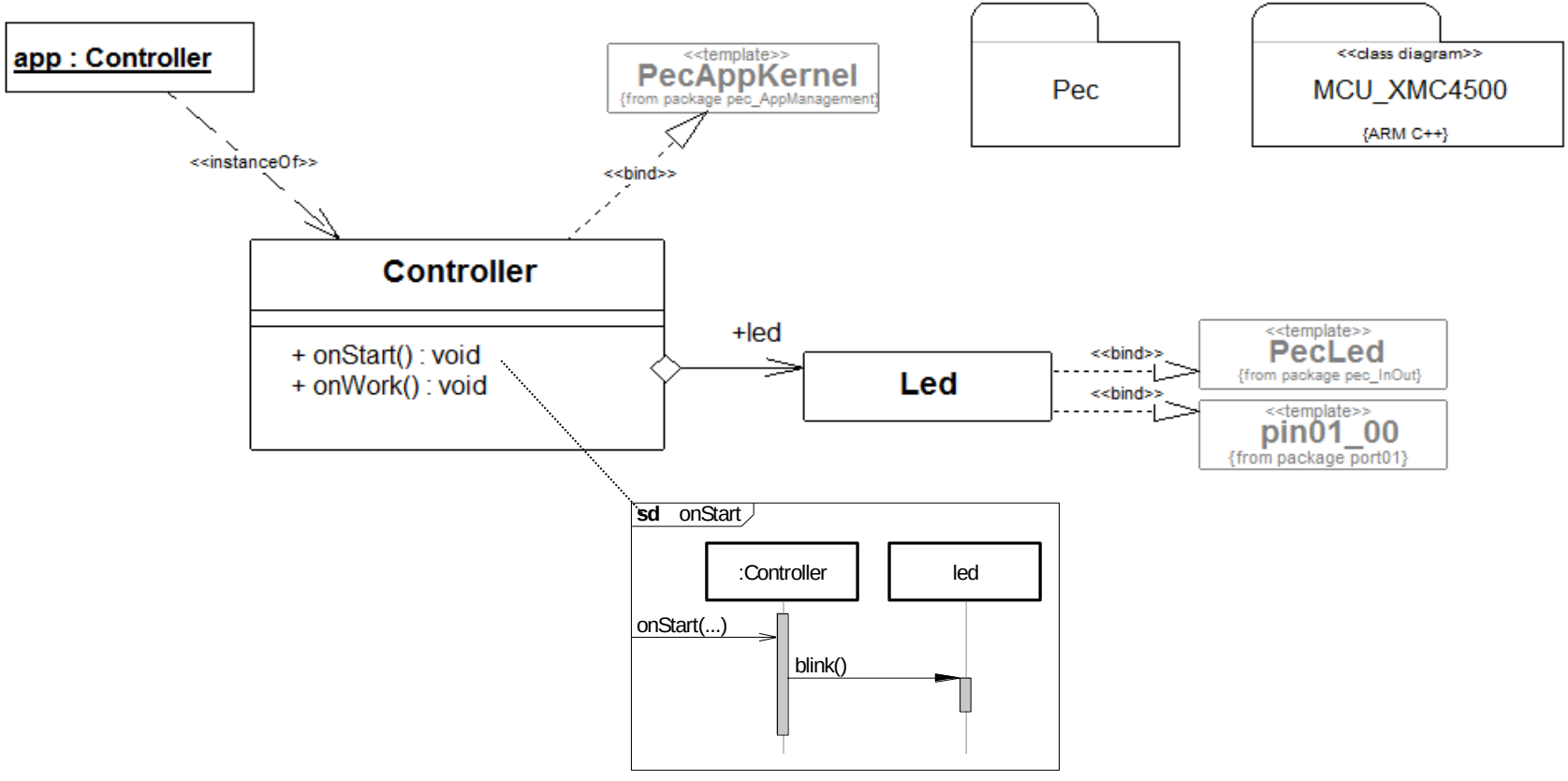
Variation Points



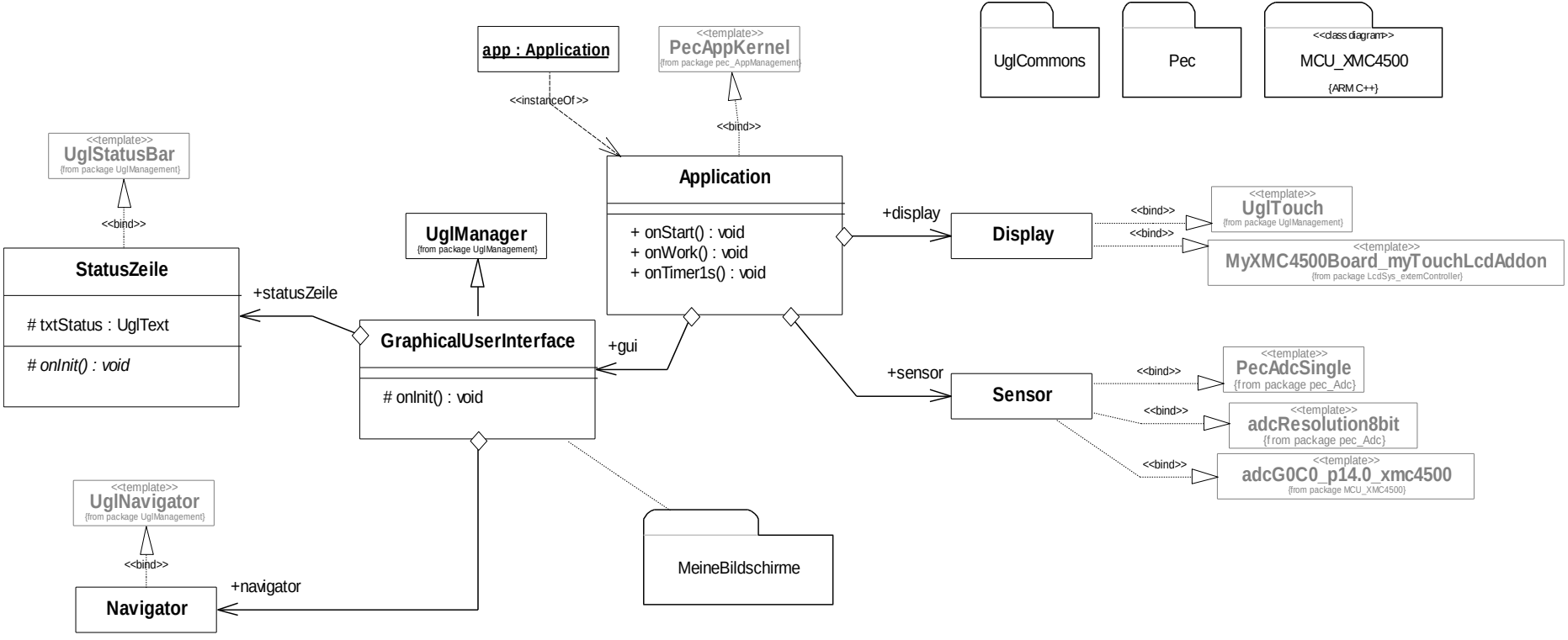
Grundsruktur einer PEC-Application



einfaches Anwendungsbeispiel

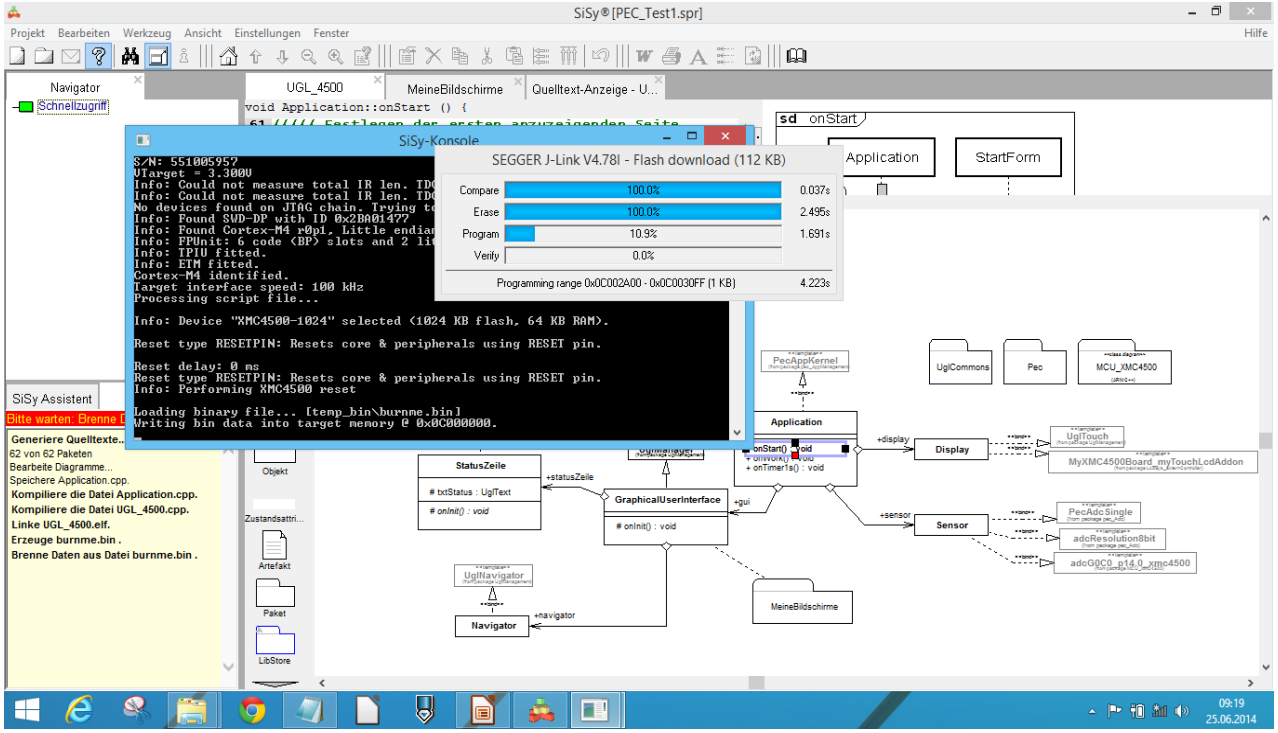


komplexes Anwendungsbeispiel



Aus dem Klassendiagramm in den FLASH

```
////////////////////////////////////////////////////
//
// Diese Quellcodedatei wurde automatisch erzeugt.
// SiSy UML CodeGenerierung
//
////////////////////////////////////////////////////

///<ObjektNummer>3522</ObjektNummer>
GoToSiSy:d:3521

#if !defined(h_Application)
#define h_Application

#include "Display.h"
#include "GraphicalUserInterface.h"
#include "Sensor.h"
#include "PecAppModul.h"

#include "Pec.h"
#include "MeineBildschirme.h"
#include "UglCommons.h"
#include "MCU_XMC4500.h"

#include <stddef.h>
#include <stdlib.h>
#include "xmc4500.h"
#include "myArm.h"
// aus Artefakt:xmcTypes.h GoToSiSy:o:947
#ifndef xmcTypes_h
#define xmcTypes_h

//LLD-Treiber
// in: Compiler\arm\arm-gcc\Infineon
#include "..\..\..\xmc_lld.h"

typedef void* port_t ;

#endif
```



auf Modellebene debuggen