

SRS Blinky

System Requirements Specification



Status: Draft

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Table of contents

1	Purpose	2
2	Overall description of the task.....	2
3	Functional requirements.....	2
4	Hardware requirements.....	3
5	Process requirements	3
6	Attachment	4



1 Purpose

All elements of this project are parts of a course for the professional development of embedded systems. This Embedded Systems Engineering course is intended to develop a broad interdisciplinary understanding and knowledge of the participants as well as to develop practical skills for the realization of embedded systems.

The hardware platform for this course is the mySTM32 Board lite. It has a microcontroller of the STM32 family and all required input and output devices or add-ons.

2 Overall description of the task

The user should see that the microcontroller is working. Develop a solution for this that shows the status of the microcontroller by flashing an LED. This indicator LED should be connected to port B0.

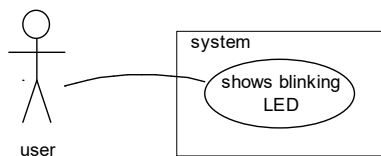


figure 1: Hello world Blinky, user's perspective

List of top level requirements:

- system: shows blinking LED

3 Functional requirements

After turning on the system, the LED blinking slowly until the user turning off the system.

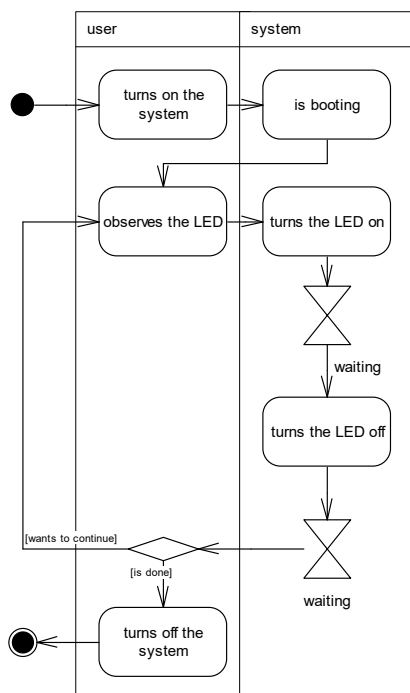


figure 2: activity model of shows blinking LED



4 Hardware requirements

The hardware platform for this course is the mySTM32 Board lite. It has a microcontroller of the STM32 family and all required input and output devices or add-ons.

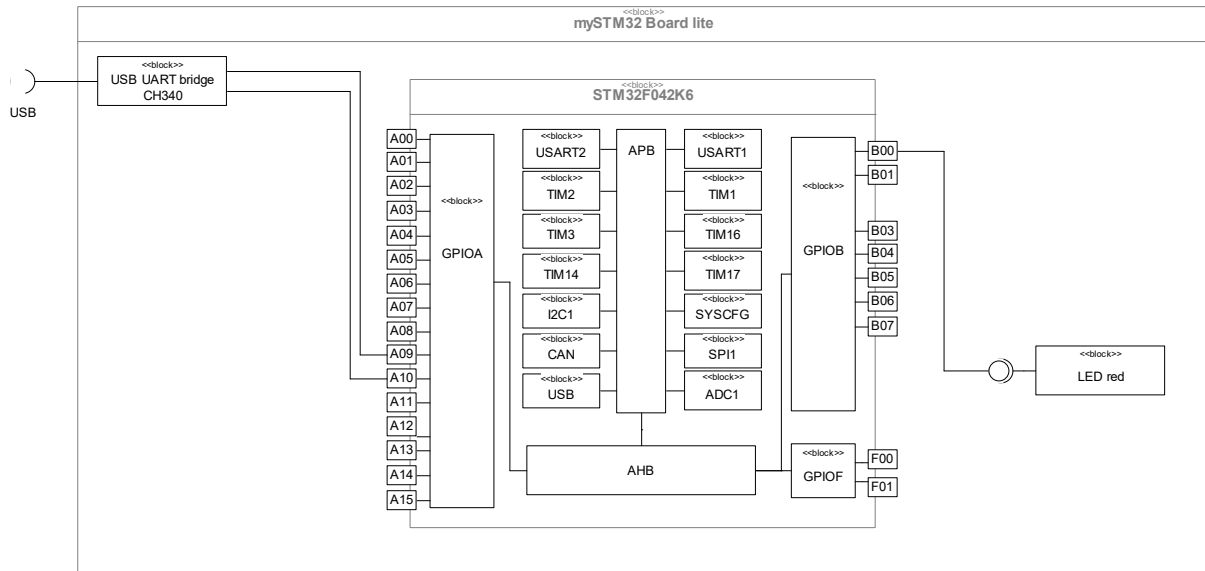


figure 3: Hardware resource model HRM of Blinky

- connected object6035
- connected USB

5 Process requirements

A software process is the defined sequence of activities, the agreed rules, techniques, tools and the expected results of the activities for the production of software. Defined software processes ensure the plannability, controllability and quality of results in the manufacture of software. The following simple software process is agreed as a binding workflow for this course.

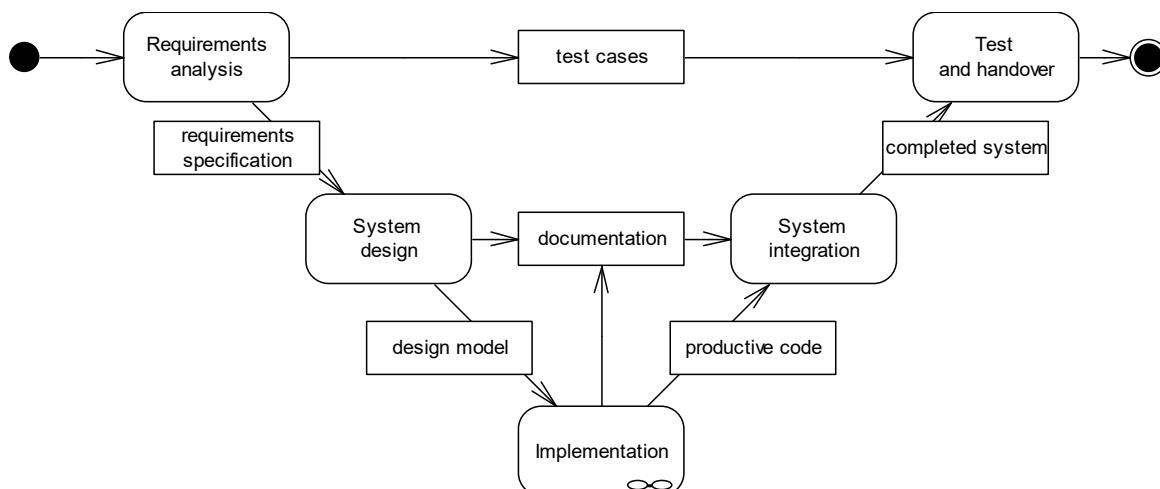


figure 4: act: lightweight model driven embedded software process



table 1: lightweight model driven embedded software process

Activity	Expected results
Requirements analysis	<ul style="list-style-type: none"> - User's perspective as use case diagram (as SysML / UML model) - required functionalities as activity diagrams (as SysML / UML model) - Test cases (as a document) - HRM hardware resource model (as SysML model) - SRS System Requirements Specification (as a document)
System design	<ul style="list-style-type: none"> - Class model of the concept level / architecture model (as UML model) - if necessary, state model (as UML model) - System documentation (as a document)
Implementation	<ul style="list-style-type: none"> - Class model of the realization (as UML model) - Behavioral models of the realization (as UML model) - Productive code (as a transferable format of the target platform, *.hex, *.elf) - System documentation (as a document)
System integration	<ul style="list-style-type: none"> - hardware software integration - the completed system
Test and handover	<ul style="list-style-type: none"> - the tested system - the technical system documentation (as a document) - the user documentation (as a document)

6 Attachment

List of figures

figure 1: Hello world Blinky, user's perspective 2

figure 2: activity model of shows blinking LED 2

figure 3: Hardware resource model HRM of Blinky 3

figure 4: act: lightweight model driven embedded software process 3

List of tables

table 1: lightweight model driven embedded software process 4