Software Modeling

Modeling and Implementation Phase

"Radio Simulation"

- Diagrams -

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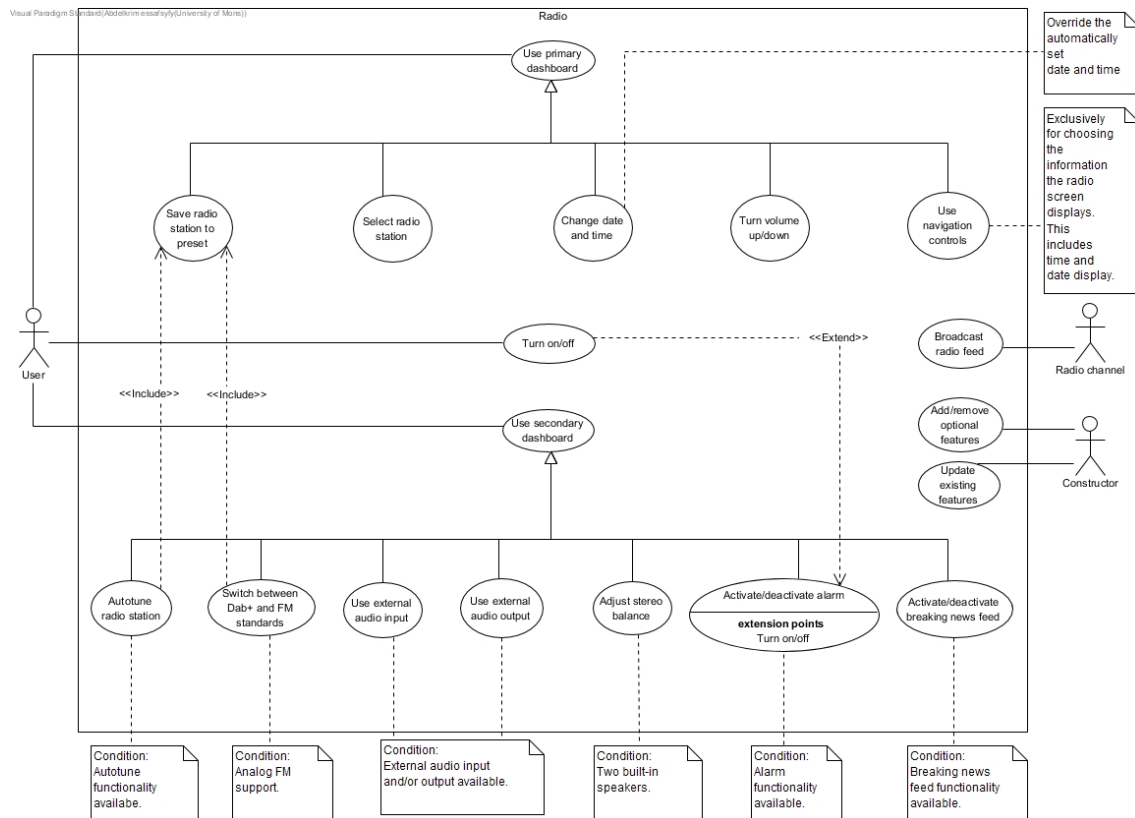
Academic year 2019-2020

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1 Use case diagram

1.1 Diagram

1.2 Use cases' description

1.2.1 Turn on/off

Use case name : Turn on/off

Summary : Allows the user to turn the radio on or off.

Actors : User.

Assumptions : Radio has access to a power source.

Preconditions : Radio is plugged in.

Basic course of action :

1. User presses power button on.

2. Radio is powered on.

Postconditions : The power button is functional.

Alternate courses :

2a : Radio is powered off.

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1.2.2   Use primary dashboard

Use case name : Use primary dashboard

Summary : An abstract use case that allows the user to use the primary radio functionalities.
Every specialization of this use case shares its actors, assumptions, preconditions and postconditions.

Actors : User.

Assumptions : Radio is plugged in.

Preconditions : Radio is powered on.

Basic course of action :

1. User chooses to use one of the available functionalitites.

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1.2.3   Turn volume up/down

Use case name : Turn volume up/down

Summary : Allows the user to turn the radio's volume up or down.

Actors : User.

Assumptions : Same as parent.

Preconditions : Radio is powered on.

Basic course of action :

1. User turns the know left or right to adjust the volume.

2. Radio changes the volume accordingly.

Alternate courses:

2a. The knob is damaged, the radio does not change the volume.

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1.2.4   Select radio station

Use case name : Select radio station

Summary : Allows the user to select a radio station using a knob

Actors : User

Assumptions : Same as parent

Preconditions : Radio is powered on

Basic course of action :

1. User turns knob until signal is good enough to produce sound

2. Radio plays radio station according to frequency

Alternate courses:

1a. User clicks one of the preset buttons

      1a1. No station is saved into the pressed preset

1b. Signal received is not good enough

1c. Preset button is damaged, the radio doesn't play

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1.2.5 Use navigation controls

Use case name : Use navigation controls

Summary: Allows the user to change the display's content depending on its size.

Actors: User

Assumptions: Same as parent

Preconditions: Radio is turned on

Basic course of action:

1. User uses navigation controls (Up, down, left, right) to choose was type of information is displayed on the screen.

2. Radio changes the display's content accordingly

Alternate courses:

1a. The navigation controls are damaged, the user is unable to choose the type of information the screen displays

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1.2.6 Change date and time

Use case name : Change date and time

Summary : Allows the user to change the date and time of the radio

Actors : User

Assumptions : Same as parent

Preconditions : Radio is turned on

Basic course of action :

1. User changes date and time using navigation controls (see use case: navigation controls)

Alternate courses:

1a. Navigation controls are damaged, the user is unable to change the date and time.

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1.2.7 Save radio station to preset

Use case name: Save radio station to preset

Summary: Allows the user to save the currently playing radio station to one of the free 9 available presets

Actors: User

Assumptions: Same as parent

Preconditions: Radio station is playing

Basic course of action:

1. User clicks on a preset button

2. Radio saves the currently playing station to the selected preset

Alternate courses:

1a. The selected preset already has a saved station

    1a1. The radio overrides the old station with the new on

1b. The selected preset is damaged, the station is not saved

1c. No free presets are available

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2   Class diagram

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3   Object diagram

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4   State diagrams

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4.2   Diagram 2

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5 Sequence diagrams

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5.2 Diagram 2

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6   Activity diagram

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If need be, a link to the git repository used for this project:

`https://github.com/Virtuosek/Radio`