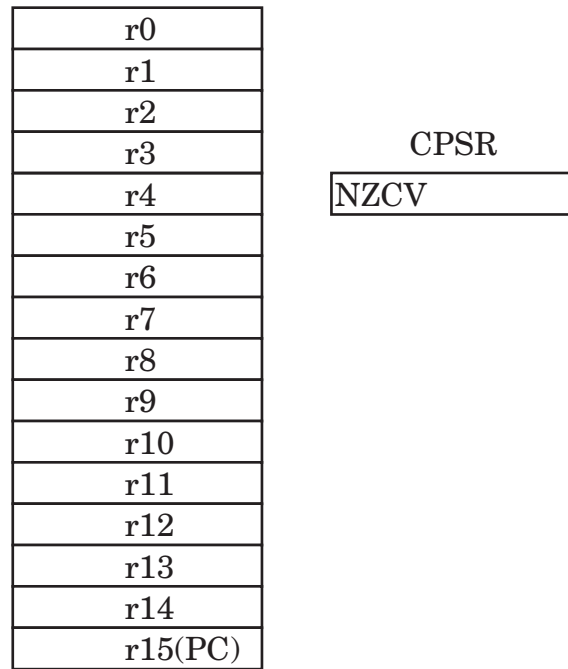
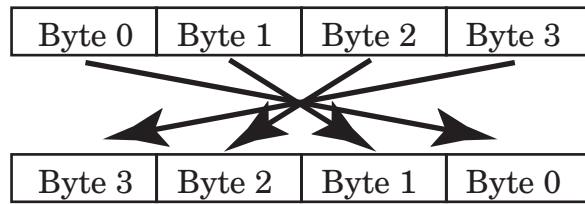


# Hoofdstuk 19

## Embedded systemen

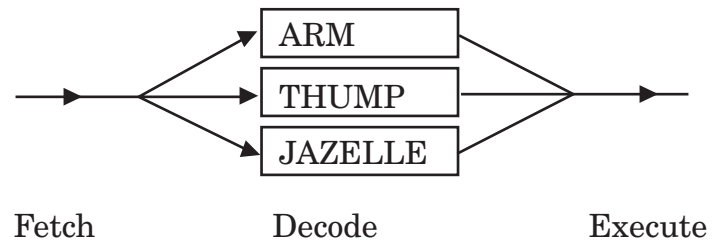


Figuur 19.1: ARM-programmeermodel.



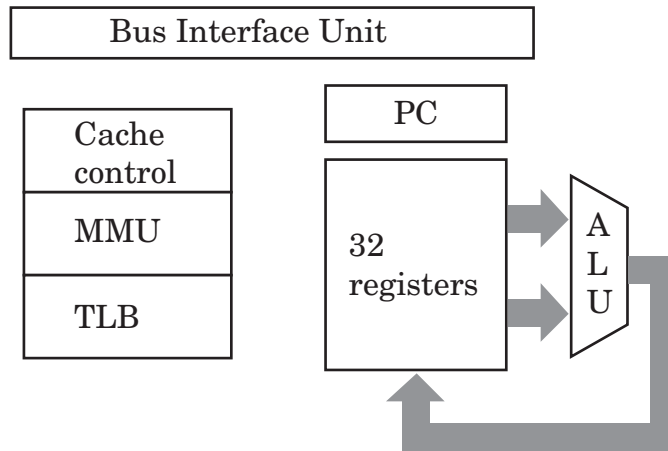
Figuur 19.2: Endian-conversie.

Computersystemen en embedded systemen (LvM)

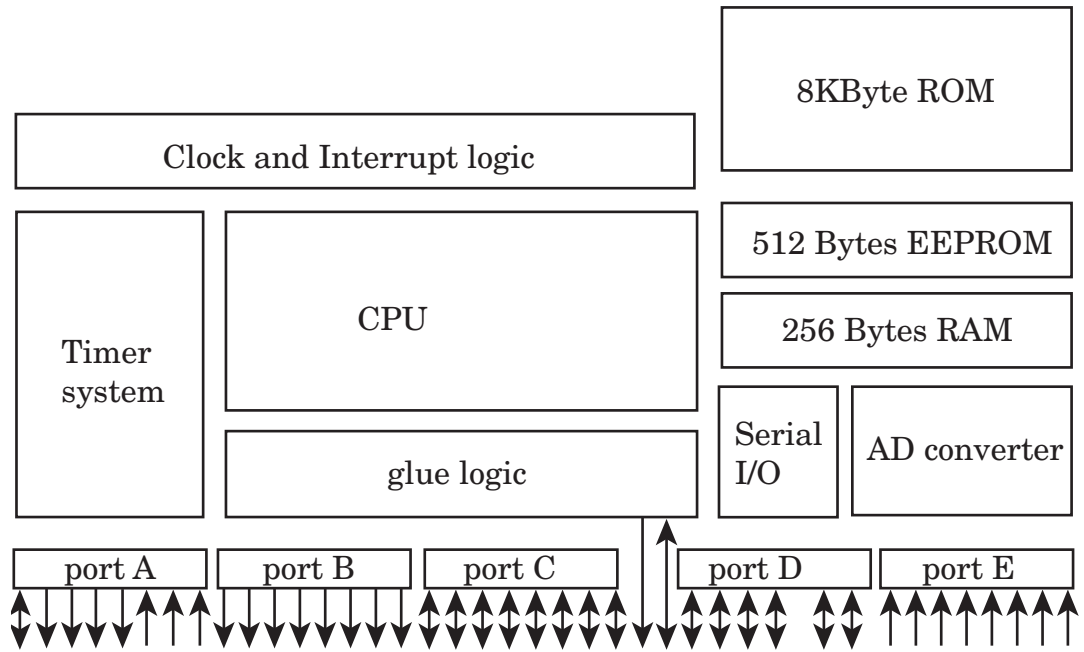


Figuur 19.3: Decode-fase in ARM met Thumb an Jazelle.

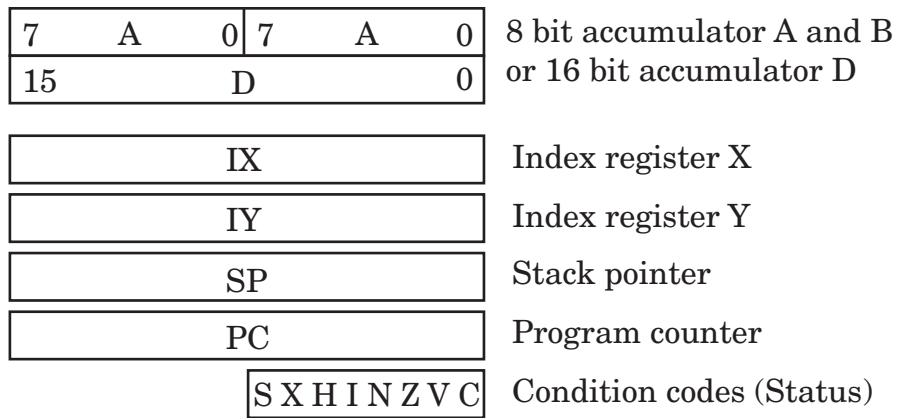
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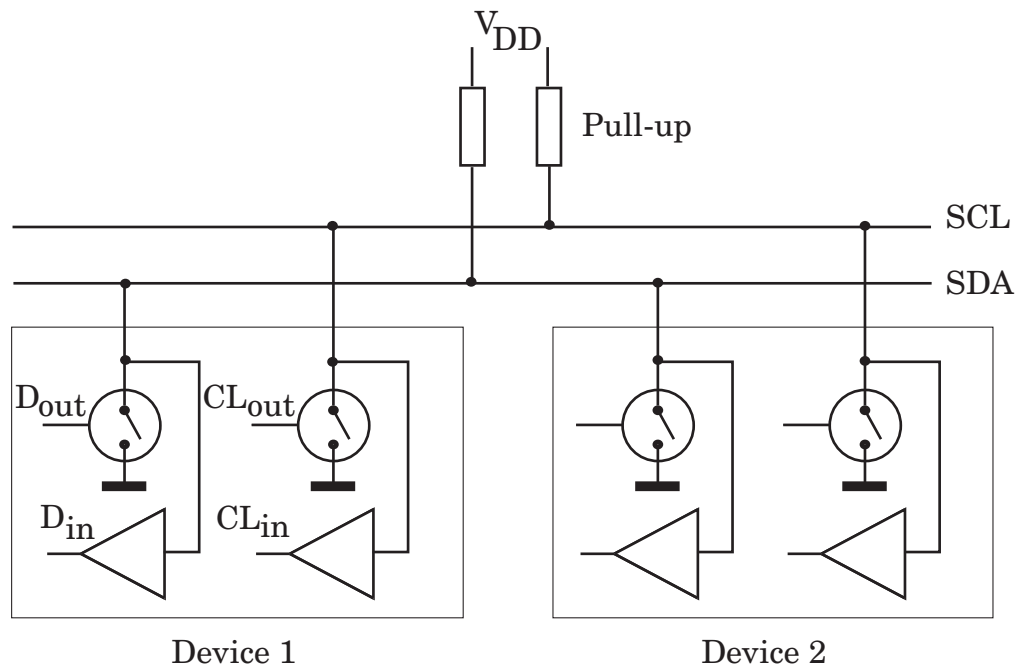
Figuur 19.4: Blokschema van de R2000/3000.



Figuur 19.5: Vereenvoudigd blokschema van een 8-bits microcontroller.

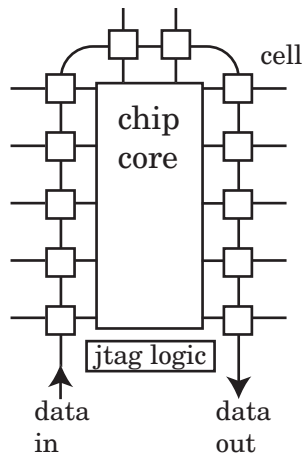


Figuur 19.6: Programmeermodel van de MC68HC11-microcontroller.



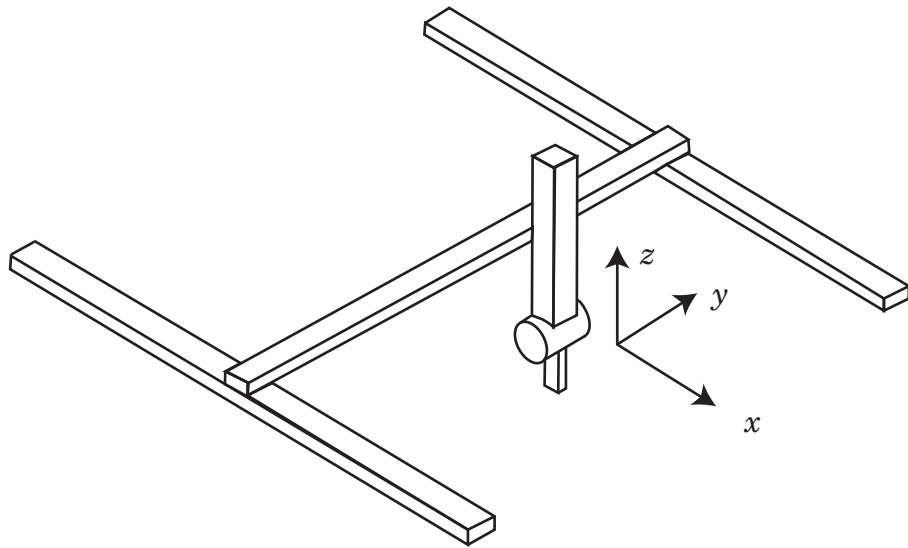
Figuur 19.7: Twee devices op de I<sup>2</sup>C-bus.





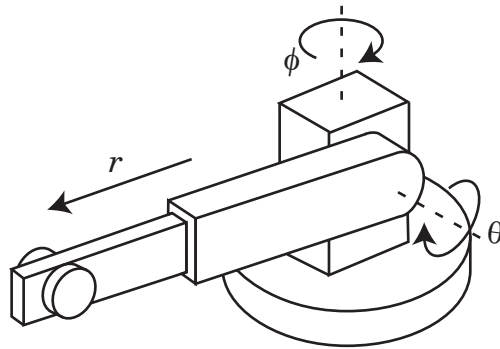
Figuur 19.8: JTAG-cells en logica.

Computersystemen en embedded systemen (LvM)



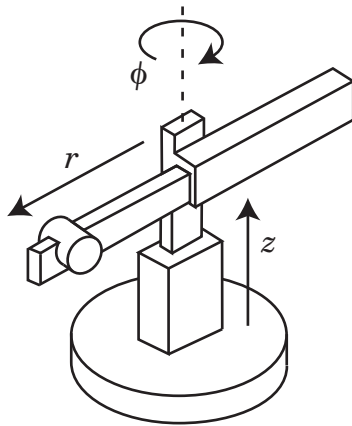
Figuur 19.9: Cartesische robot.

Computersystemen en embedded systemen (LvM)



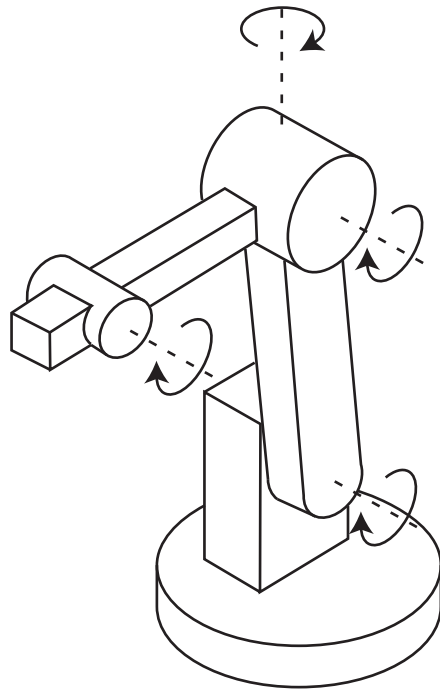
Figuur 19.10: Sferische robot.

Computersystemen en embedded systemen (LvM)



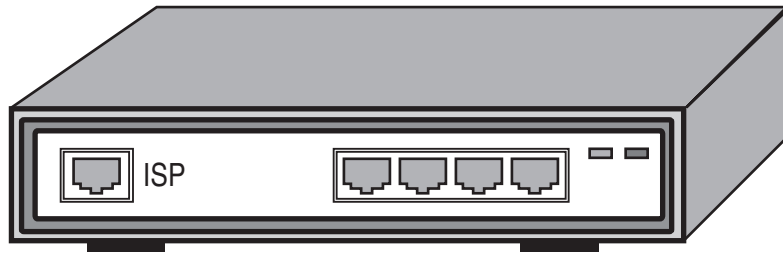
Figuur 19.11: Cilindrische robot.

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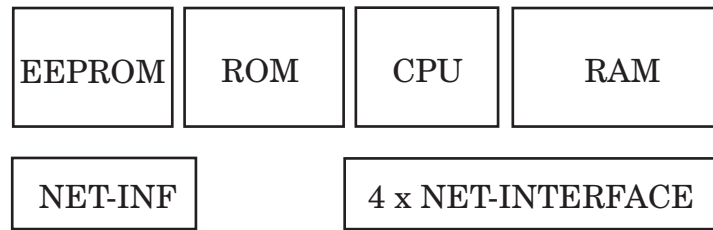
Figuur 19.12: Gelede robot.

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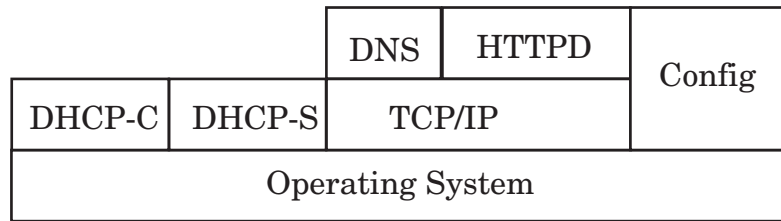
Figuur 19.13: Embedded router voor een thuisnetwerk.

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Figuur 19.14: Blokschema van een embedded router.

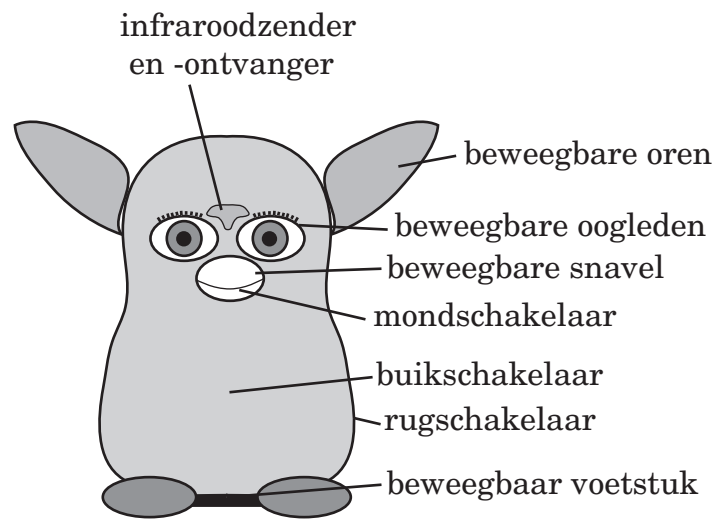
Computersystemen en embedded systemen (LvM)



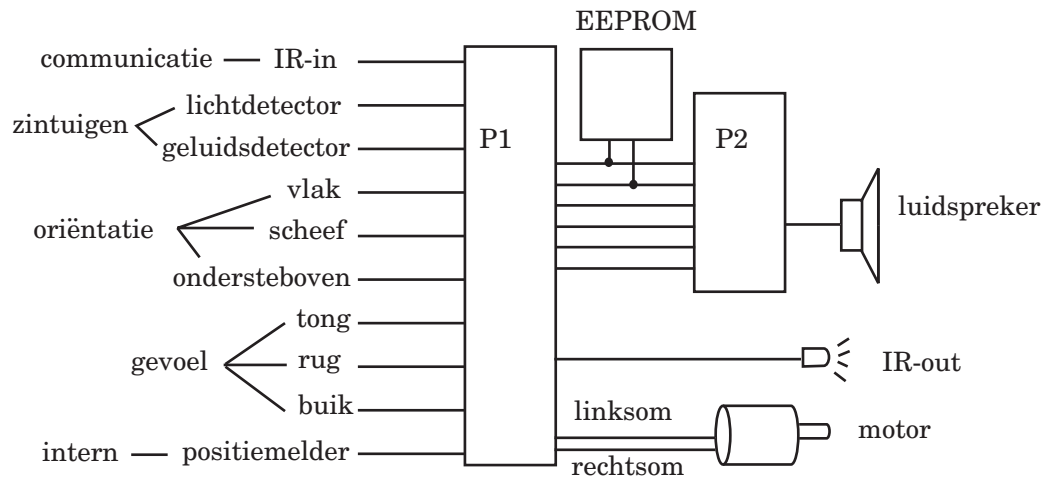
Figuur 19.15: Softwaremodel van de embedded router.

Computersystemen en embedded systemen (LvM)

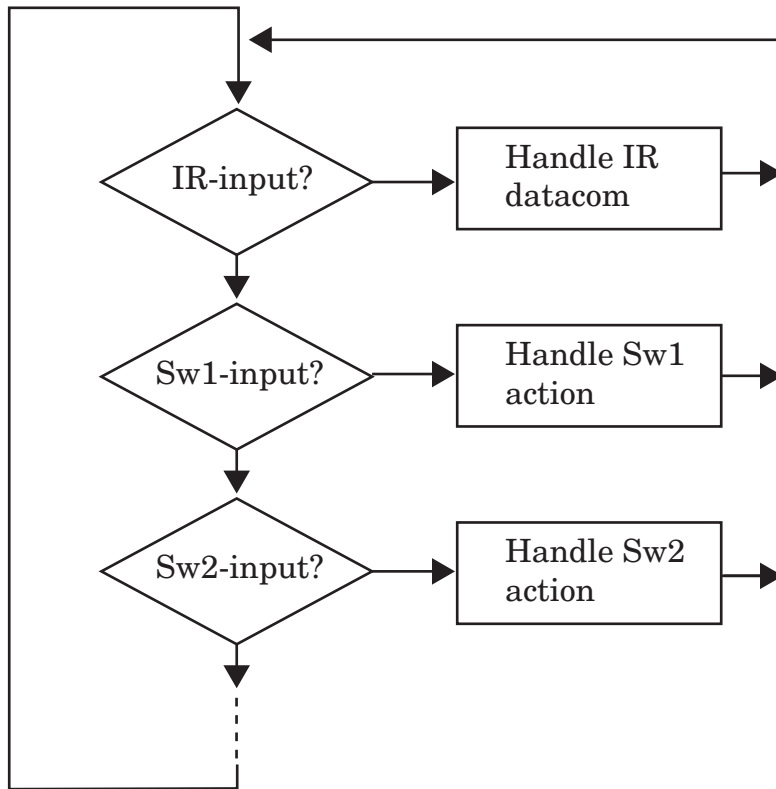




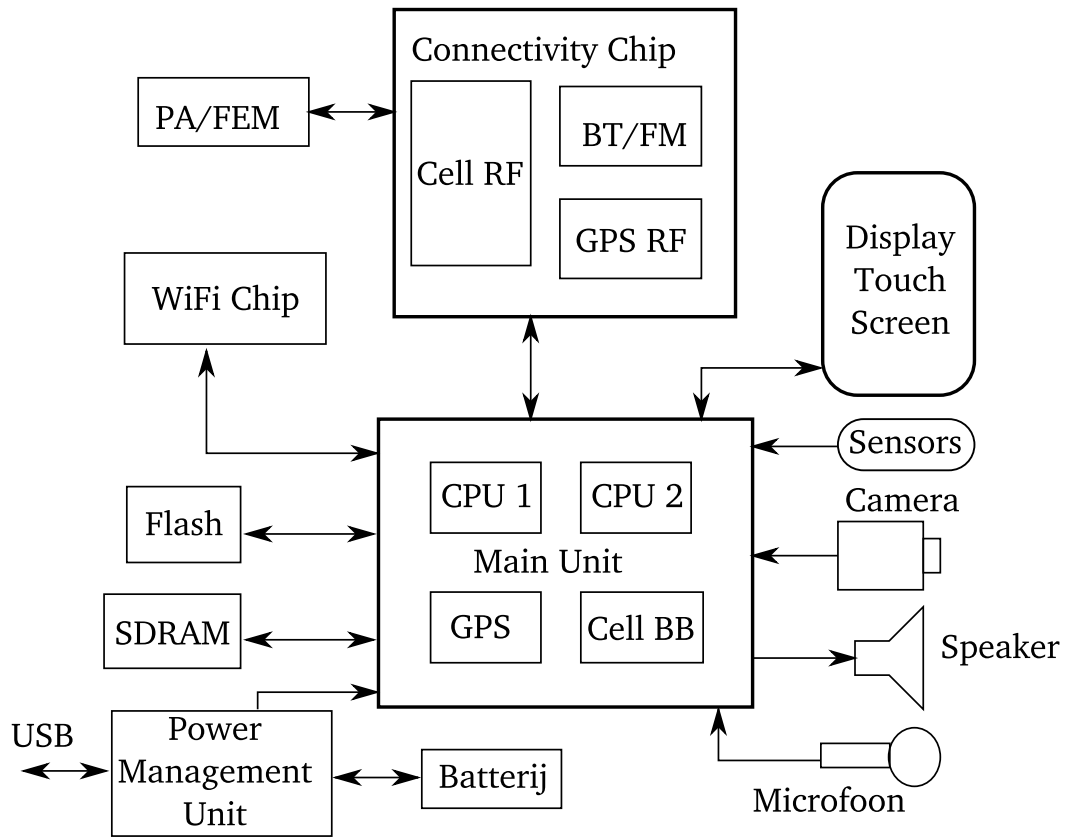
Figuur 19.16: Furby.



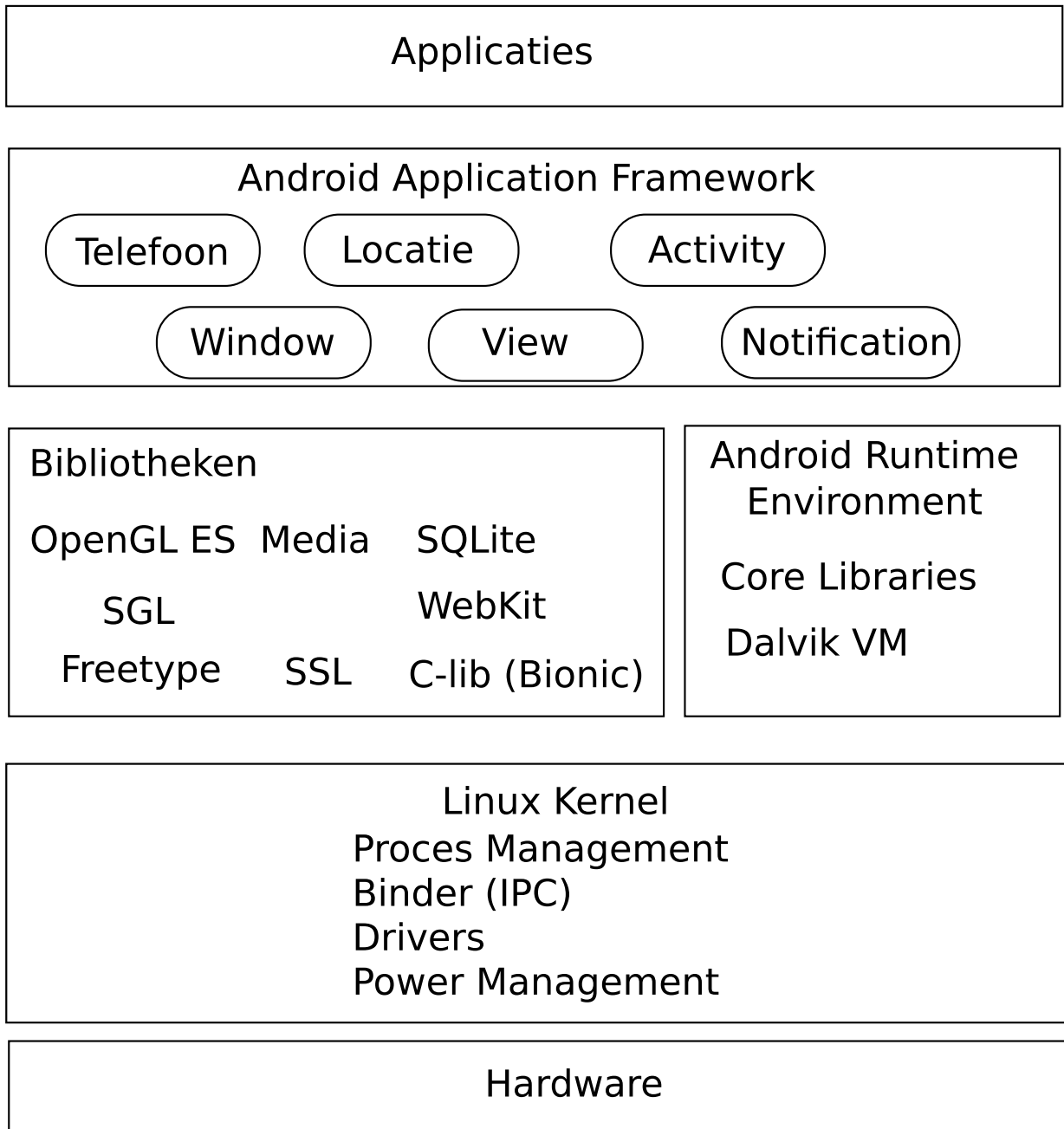
Figuur 19.17: Blokschema van Furby.



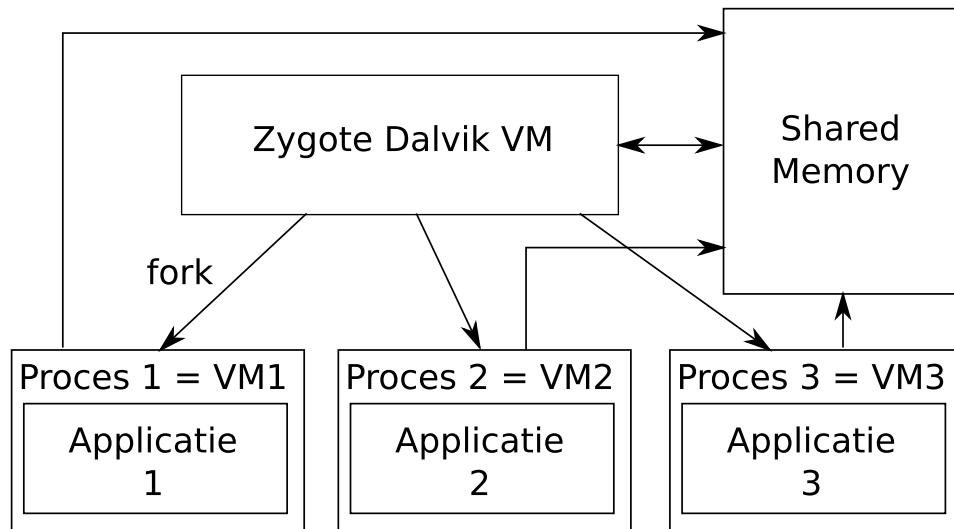
Figuur 19.18: Eventloop is de basis van de software.



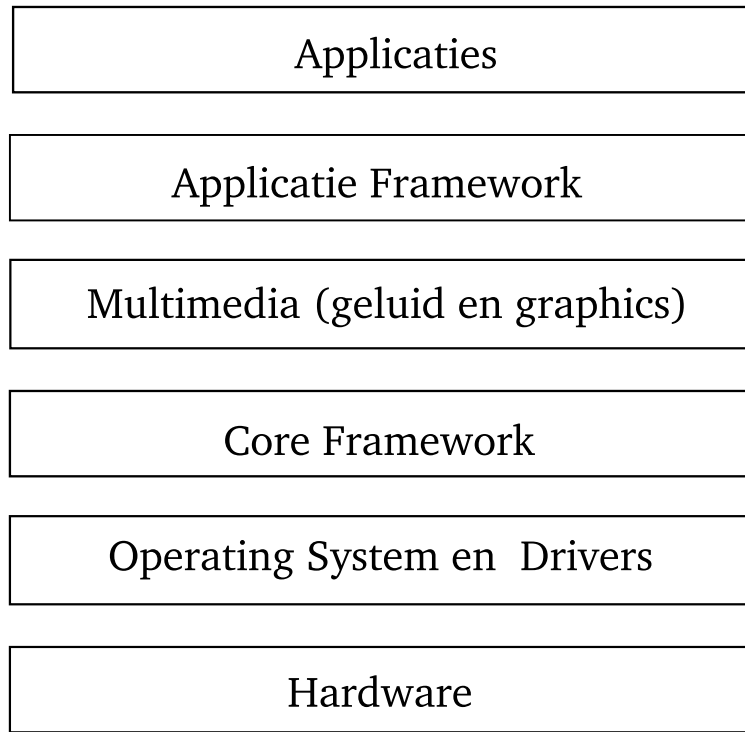
Figuur 19.19: Smartphone hardware.



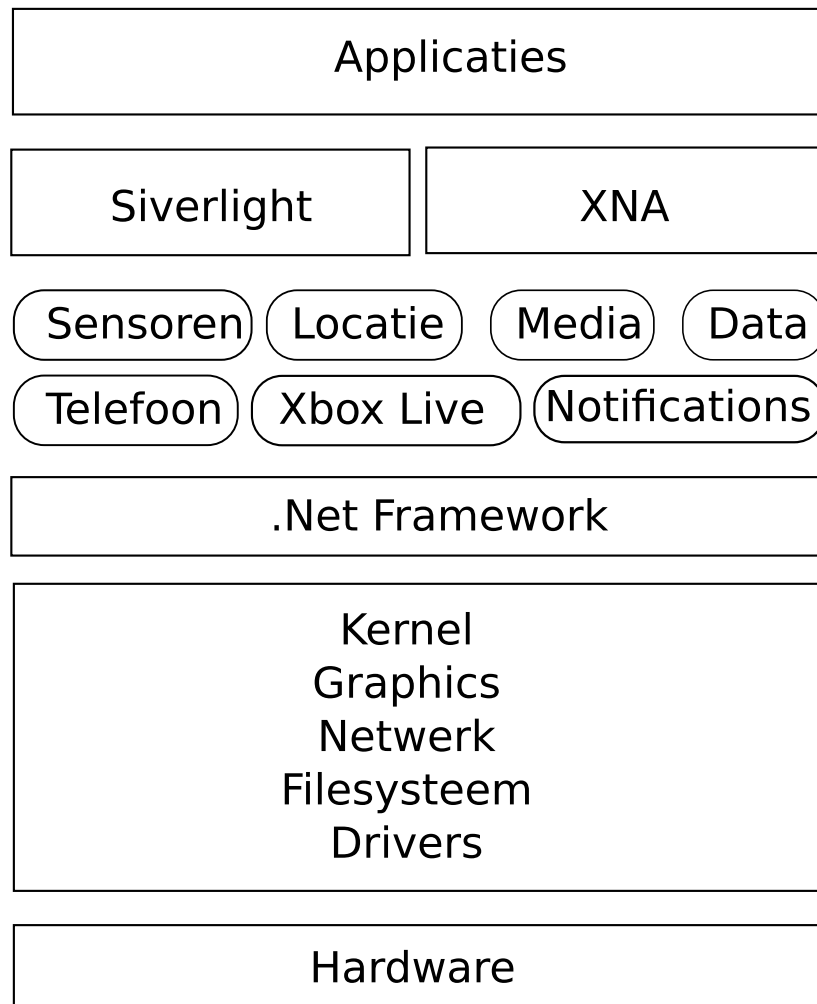
Figuur 19.20: Android-architectuur.



Figuur 19.21: Procescreatie bij Android.

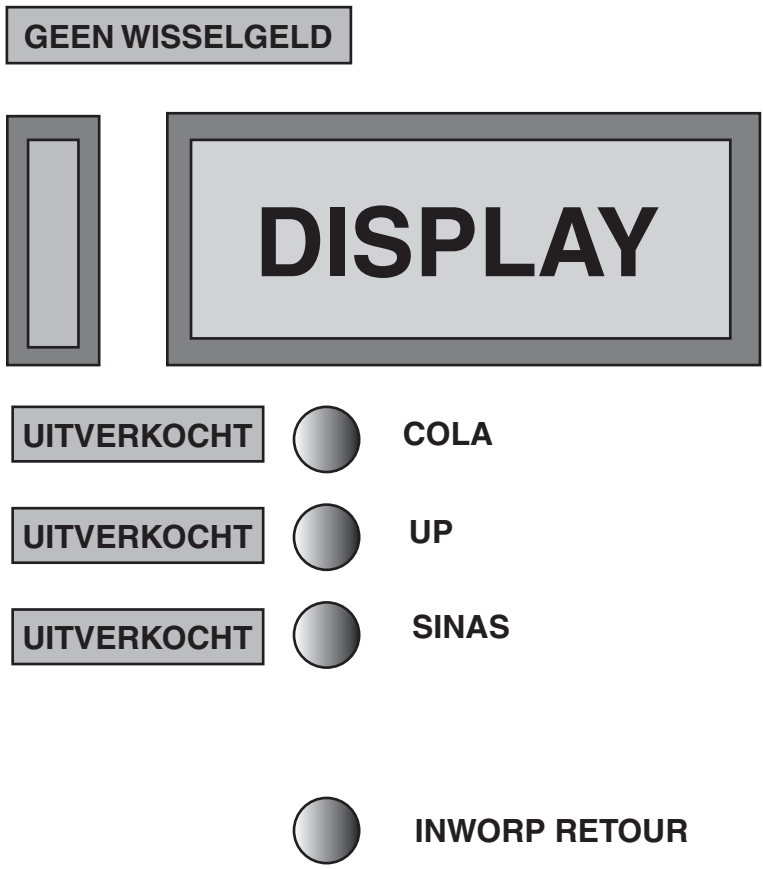


Figuur 19.22: iOS-architectuur.



Figuur 19.23: Windows Phone architectuur.

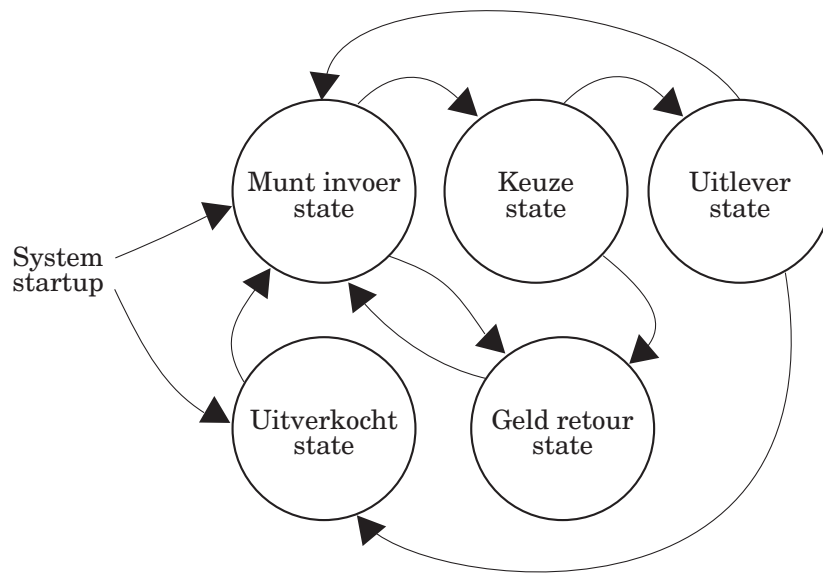




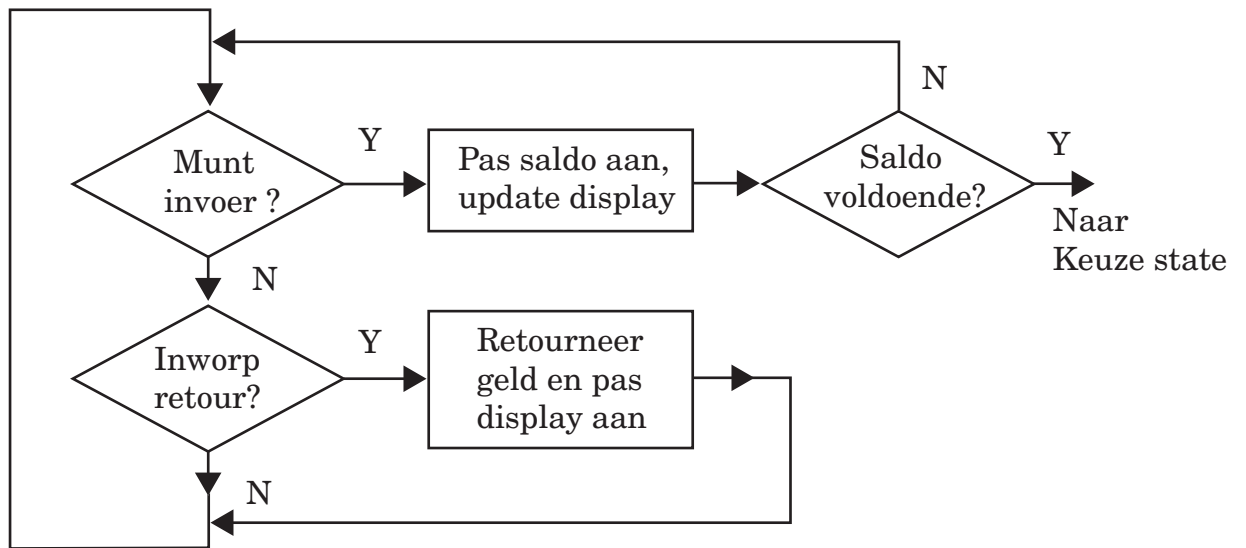
Figuur 19.24: Bedieningspaneel van de frisdrankautomaat.

Input	Output
Wisselgeld status –Intern 100 } 50 } 20 } – Muntinvoer 10 } 5 }	<b>GEEN WISSELGELD</b> statuslamp Blokkeer muntinvoer
Voorraad Cola } Voorraad Up } – Intern Voorraad Sinas }	<b>DISPLAY</b> (serieel ASCII)  Blokkeer muntinvoer Vrijgeven Cola Vrijgeven Up Vrijgeven Sinas
Keuze <b>COLA</b> } Keuze <b>UP</b> } – Drukknop Keuze <b>SINAS</b> } <b>INWORP RETOUR</b> }	<b>UITVERKOCHT</b> Cola statuslamp <b>UITVERKOCHT</b> Up statuslamp <b>UITVERKOCHT</b> Sinas statuslamp Inworp retour actie

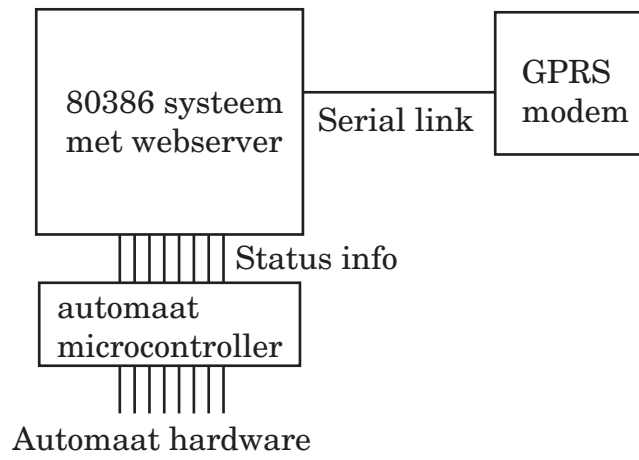
Figuur 19.25: In- en uitgangssignalen van de embedded controller.



Figuur 19.26: Eindige automaatmodel voor de software.

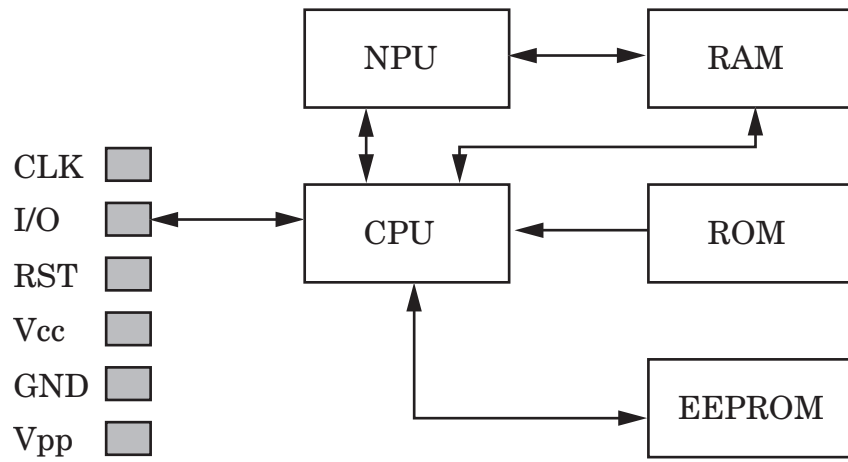


Figuur 19.27: Deel van het flowdiagram van de frisdrankautomaat.



Figuur 19.28: Blokschema van de frisdrankautomaat.

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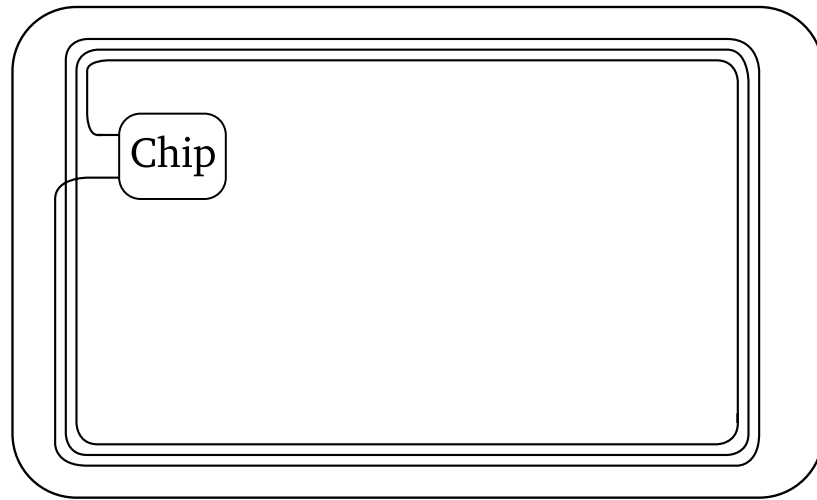
Figuur 19.29: Blokschema van een smartcard.

Computersystemen en embedded systemen (LvM)

C1		C5	Vcc		GND
C2		C6	RST		Vpp
C3		C7	CLK		I/O
C4		C8	-		-

Figuur 19.30: Aansluitingen van een SIM-kaart.

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Figuur 19.31: Contactloze smartcard.

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