

# Sissejuhatus robotikasse

Peeter Salong



# [ Sisukord ]

---

- Mida hõlmab endas robotika?
- Robot?
- Roboti ehitamise etapid
- Roboti põhikomponendid
- Prototüübi lahkamine



# [ Robotika ]

---

- Tehnoloogia, mis hõlmab endas robotite disaini, ehitust ning nende kasutamist



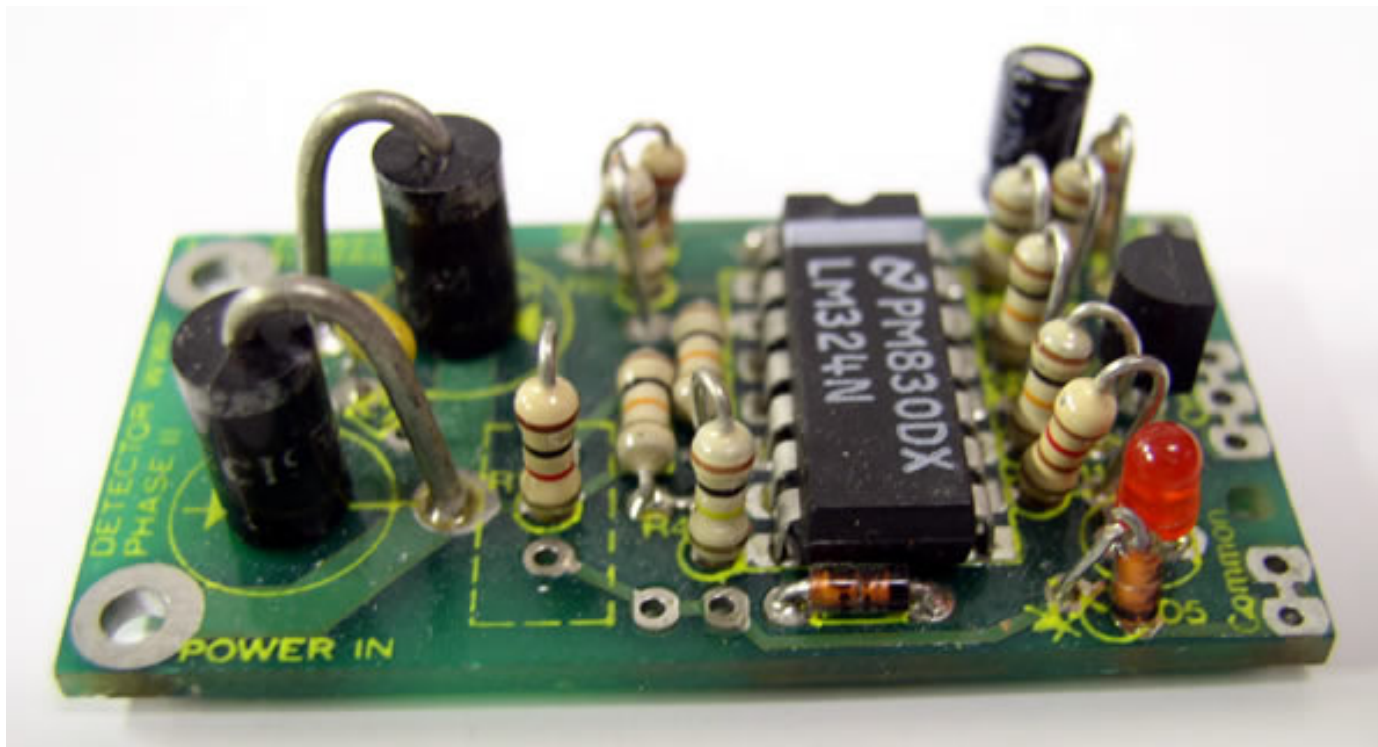
# [ Robotika sisaldab ]

- Mehhaanika



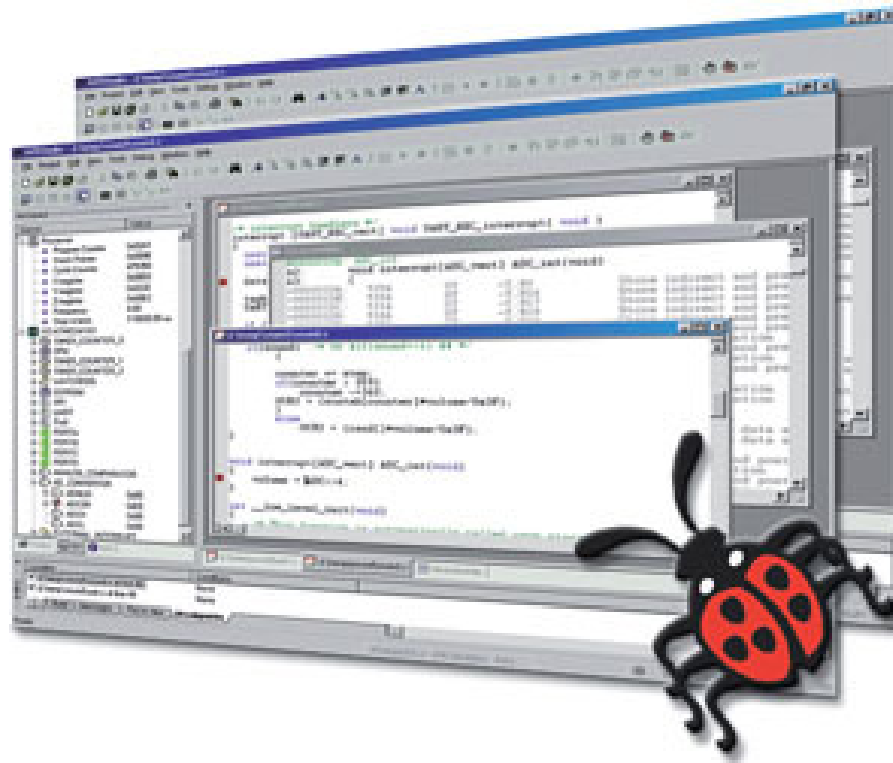
# [ Robotika sisaldab ]

- Elektroonika



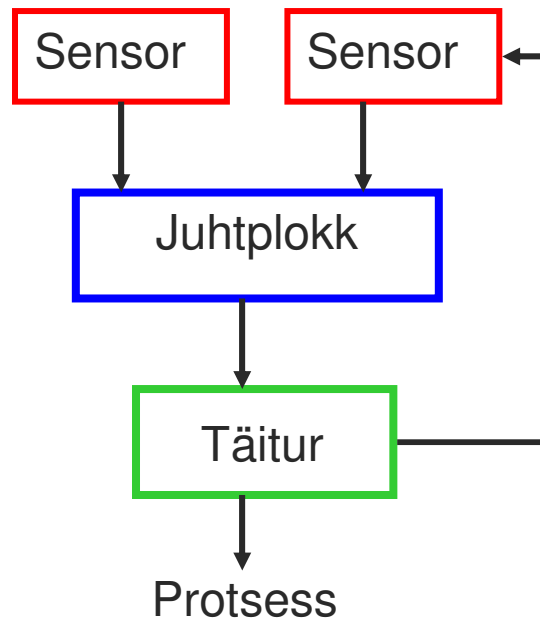
# [ Robotika sisaldab ]

- Programmeerimine

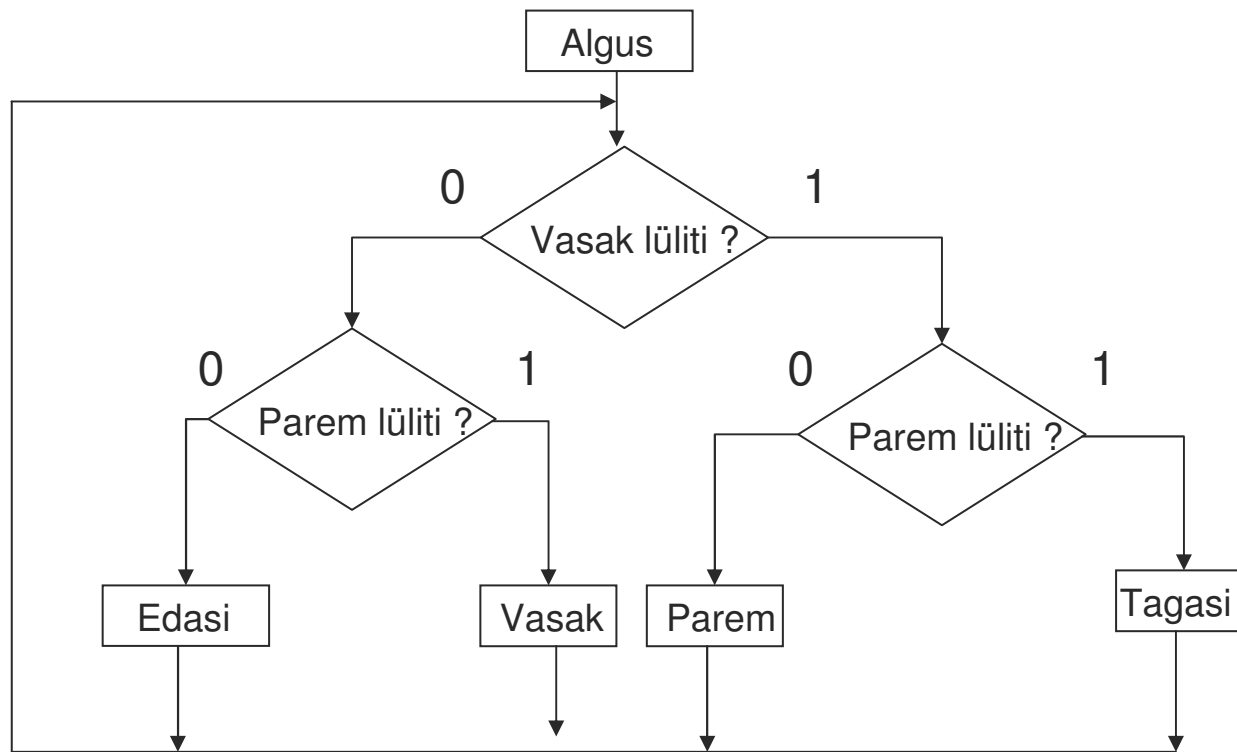


# [ Robotika sisaldab ]

- Juhtimisteooria



# [ Juhtimisteooria (jätk) ]



0 - väljas

1 - sees



# [ Mis on robot? ]

---

- Süsteem või seade, mis teostab iseseisvalt etteantud ülesannet.



# [ Robotid ]



# [ Robotid ]



# [ Robotid ]

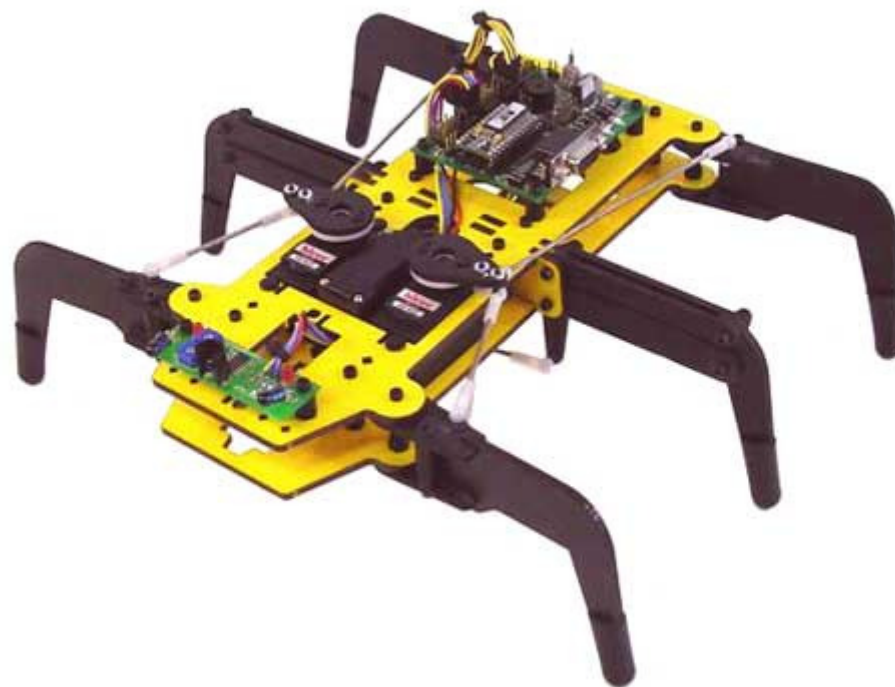


# [ Robotid ]



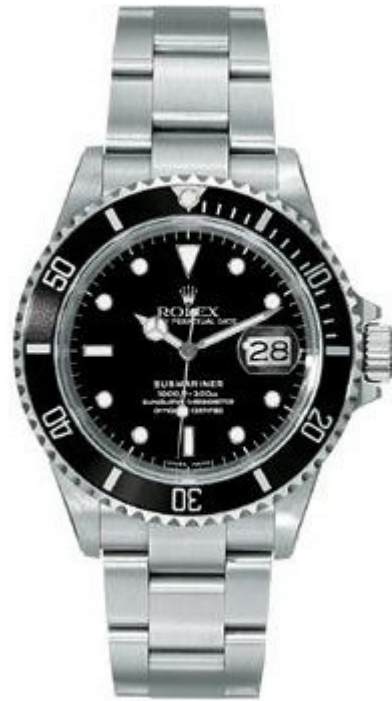
# [ Robotid ]

---



# [ Robotid ]

---



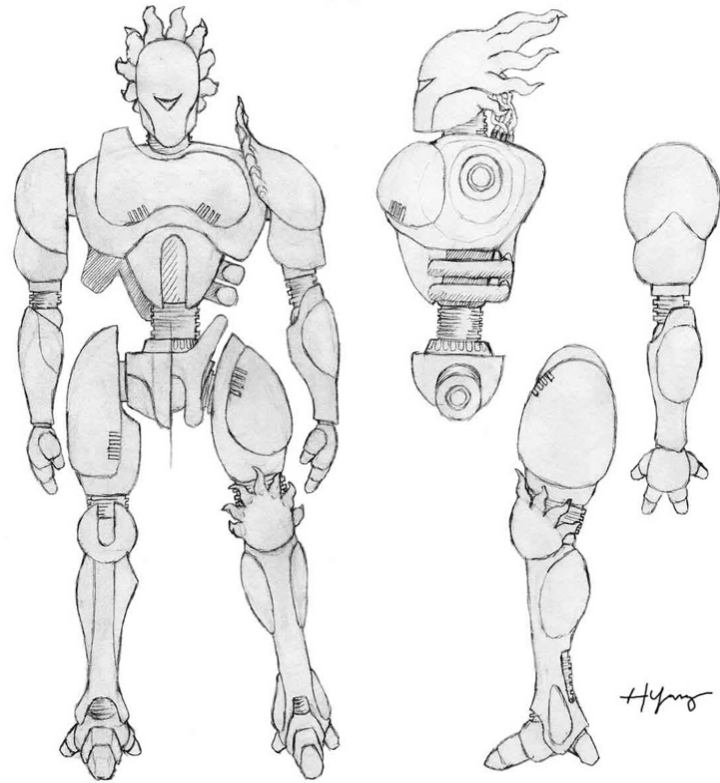
# [ Roboti ehitamise etapid ]

- Motivatsioon
- Raha
- Disain
- Komponentide valik ja arvutused
- Ehitamine
- Testimine



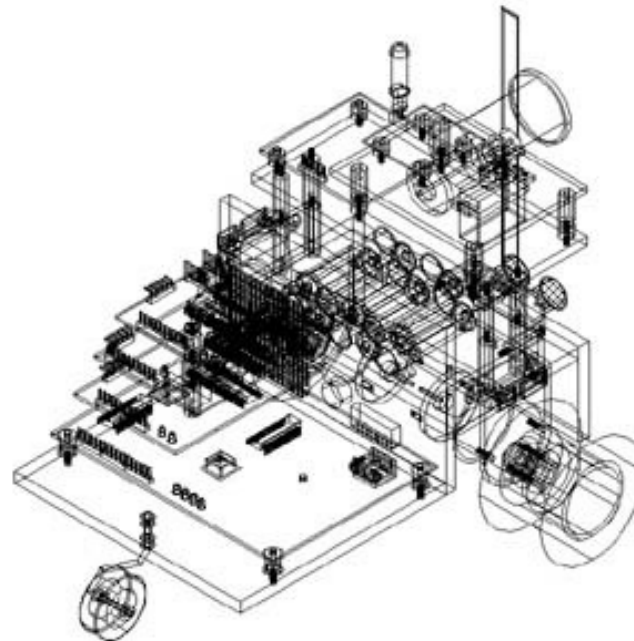
# [ Roboti ehitamise etapid ]

- Disain
  - Hoia asjad lihtsana!



# [ Roboti ehitamise etapid ]

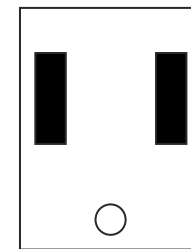
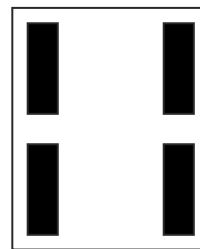
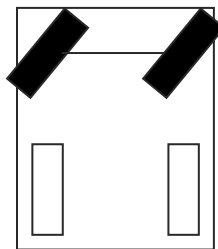
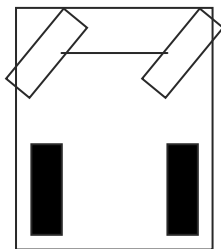
- Disain (tuletõrje robot)



# [ Roboti ehitamise etapid ]

## ■ Disain (näide)

Rataste paigutus



Vedav ratas



Tugiratas



# [ Roboti ehitamise etapid ]

- Komponentide valik ja arvutused



Aku: 2000 mAh  
1,2 V

Mootor: sisendpinge 6 V

14 W ?

$$N = U * I$$



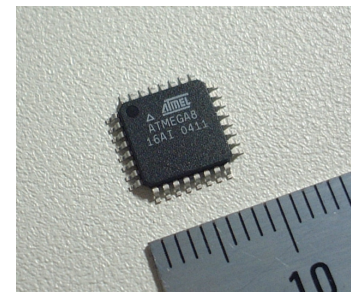
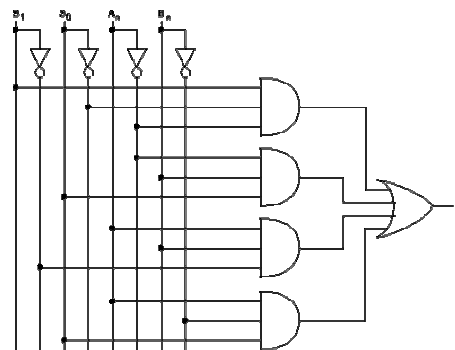
# [ Roboti ehitamise etapid ]

- Ehitamine
- Testimine



# [ Roboti põhikomponendid ]

- Roboti aju – arvutusseade
  - PC
  - Mikrokontroller
  - Loogikablokk

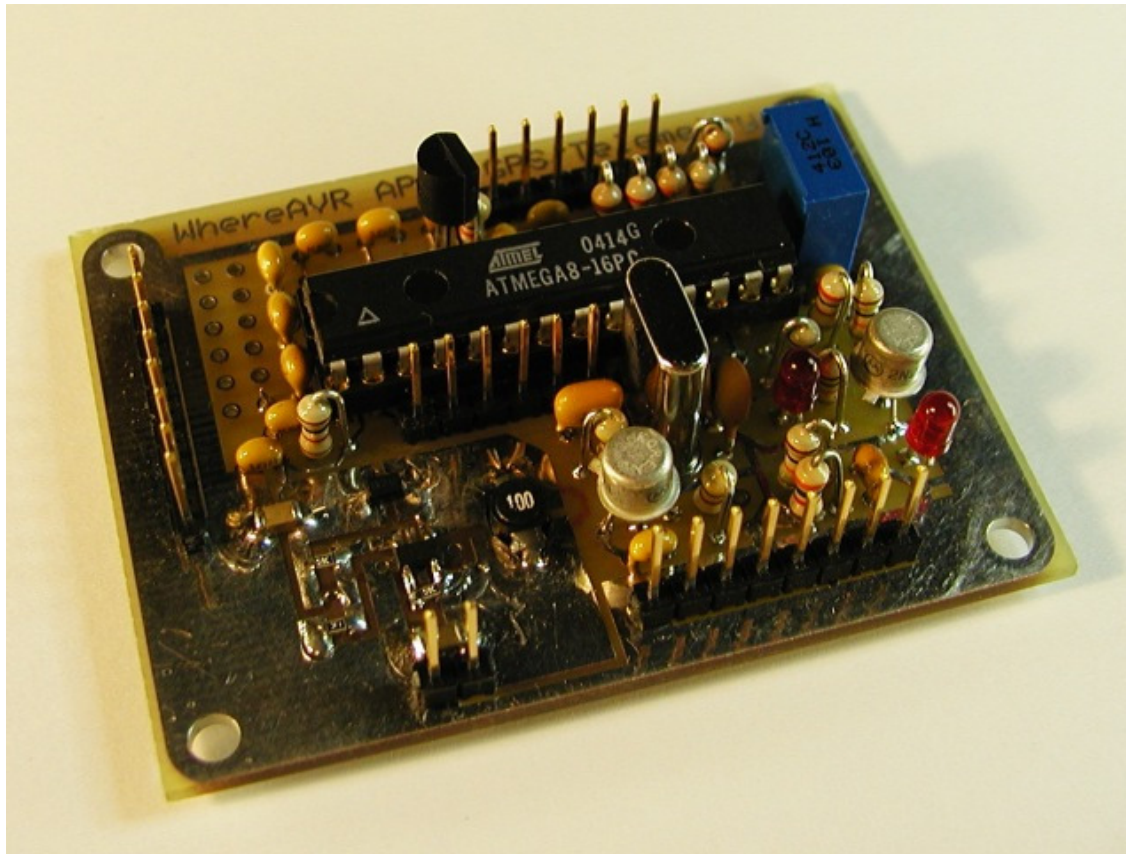


# [ Roboti põhikomponendid ]

- Elektronikakomponendid
  - Takistid, kondensaatorid, diodid, transistorid ...
  - Trükkplaat/ makettplaat
  - Juhtmed, pistikud



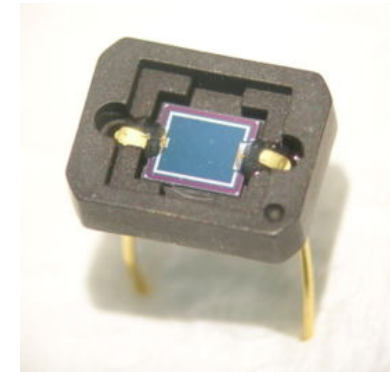
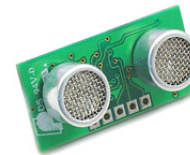
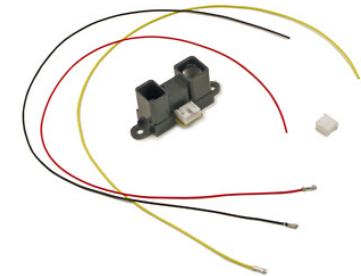
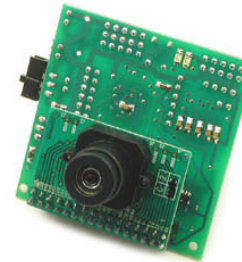
# [ Roboti põhikomponendid ]



# [ Roboti põhikomponendid ]

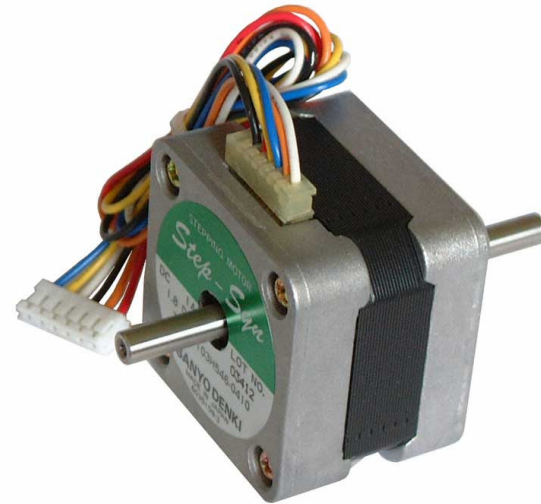
## ■ Sensorid

- Fotosensorid
- Infrapuna andurid
- Ultraheli andurid
- Kaamerad
- Termomeetrid
- ....



# [ Roboti põhikomponendid ]

- Täiturseamed
  - Mootorid
  - Küttekehad
  - Klapid
  - Ventiilid



# [ Roboti põhikomponendid ]

- Mehaanika osad
  - Rattad
  - Kerekonstruktsioon
  - Lindid



# [ Roboti põhikomponendid ]

- Energiallikad

- Patareid
- Akud
- Päikesepaneelid



# [ Roboti põhikomponendid ]

- Programmi kood

```
LorenzAttractor.c*
#include <origin.h>

////////////////////////////////////
// start your functions here

void LorenzAttractor( string strWksName, double tolerance)
{
    Dataset xDataset(strWksName,0); // x data in column 0
    Dataset yDataset(strWksName,1); // y data in column 1

    if(!yDataset.IsValid())
        return;

    // C++ convention of variable declaration anywhere in
    int iSize = xDataset.GetSize();//Get number of element

    string strDatasetName;           //String variabe to
    yDataset.GetName(strName);       //Get the name of the

    for (int ii = 0; ii < iSize; ii++)
    {
```



# [ Prototüübi lahkamine ]

- Atmega8 mikrokontoller



# [ Prototüübi lahkamine ]

- 2 fototransistori



# [ Prototüübi lahkamine ]

- 2 mikrolülitit



# [ Prototüübi lahkamine ]

---

- Elektroonika



# [ Mootorid ]

---

- 2 servo mootorit



# [ Prototüübi lahkamine ]

- 2 ratast
- 1 tugikuul



# [ Prototüübi lahkamine ]

- Toiteallikas 6V 1,3 Ah



# [ Prototüübi lahkamine ]

- Programmi kood - C/C++

```
/*  
 * HelloWorld: A simple C program  
 */  
  
#include <stdio.h>  
  
int main (void)  
{  
    printf ("Hello, world!\n");  
    return 0;  
}
```



# [ Kokkuvõte ]

---

