



Sisteme cu MicroProcesoare

Curs 11

GT Robot

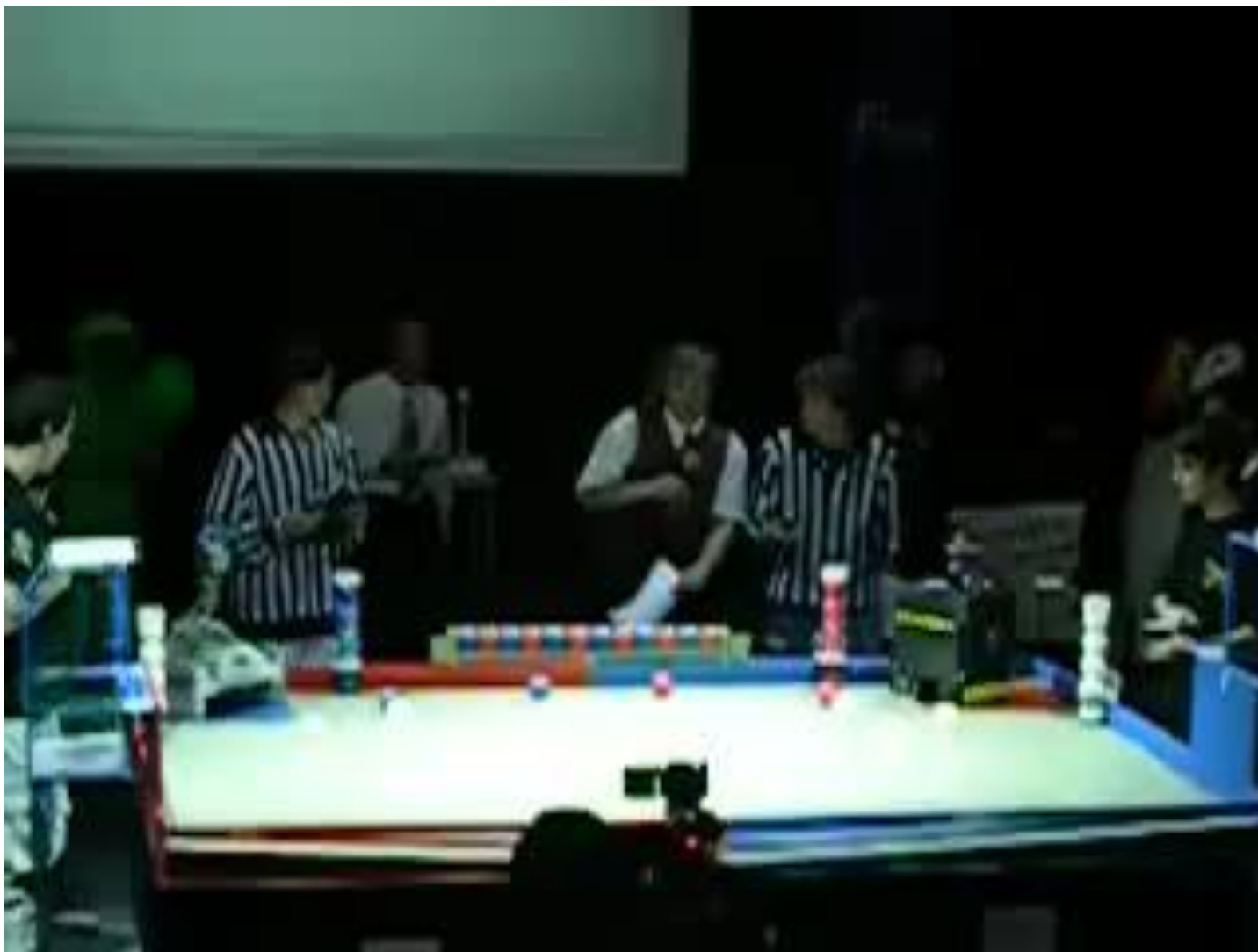
Tiberiu COCIAS



Cuprins

- **Motivația**
- **Caietul de sarcinii**
- **GT Robot – principalele module**
- **GT Team**

Motivația

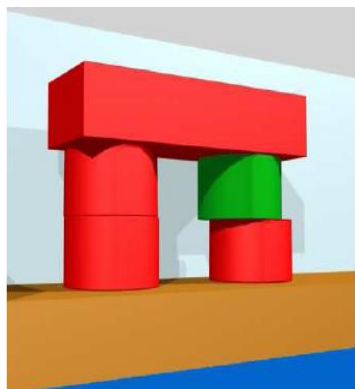


La Ferté-Bernard



Caietul de sarcinii

- Toate informațiile sunt puse la dispoziție de organizatorii concursului.



Red team

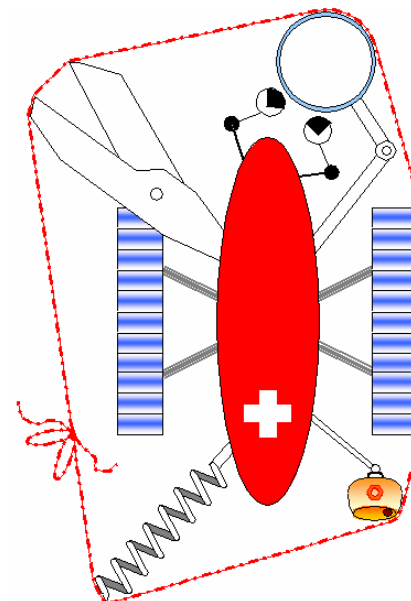
Left column: $2 + 3 = 5$
right column : 2
lintel: $4 * 3 = 12$

Total : 19 points

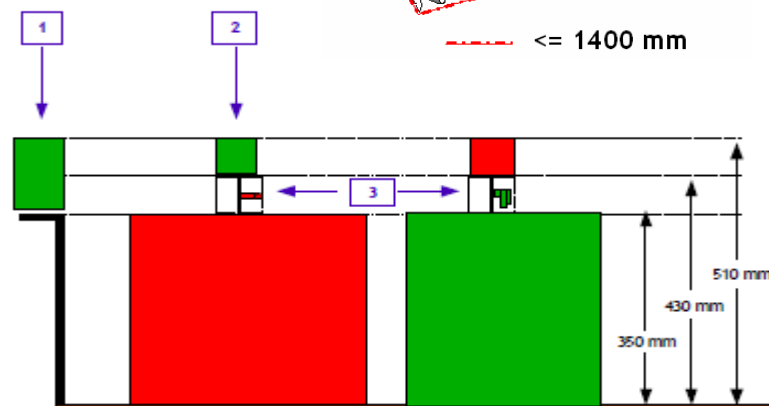
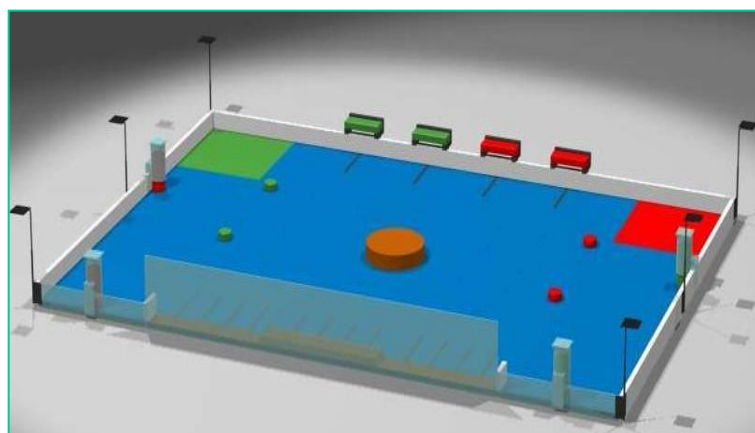
Green team

Right column : 3

Total : 3 points



--- ≤ 1400 mm



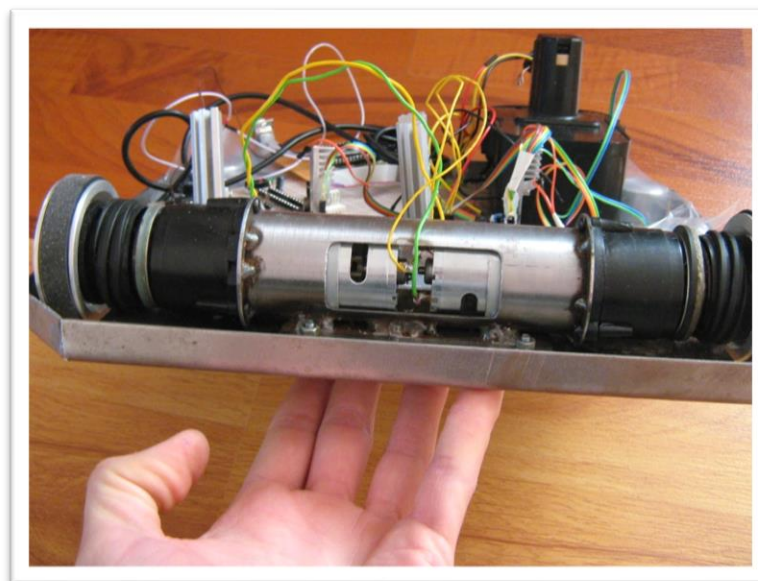
Legend :

- 1 : Fixed beacon (80x80x160 mm)
- 2 : Robot localisation beacons (80x80x80 mm)
- 3 : Mast (area for sensors only)



GT Robot

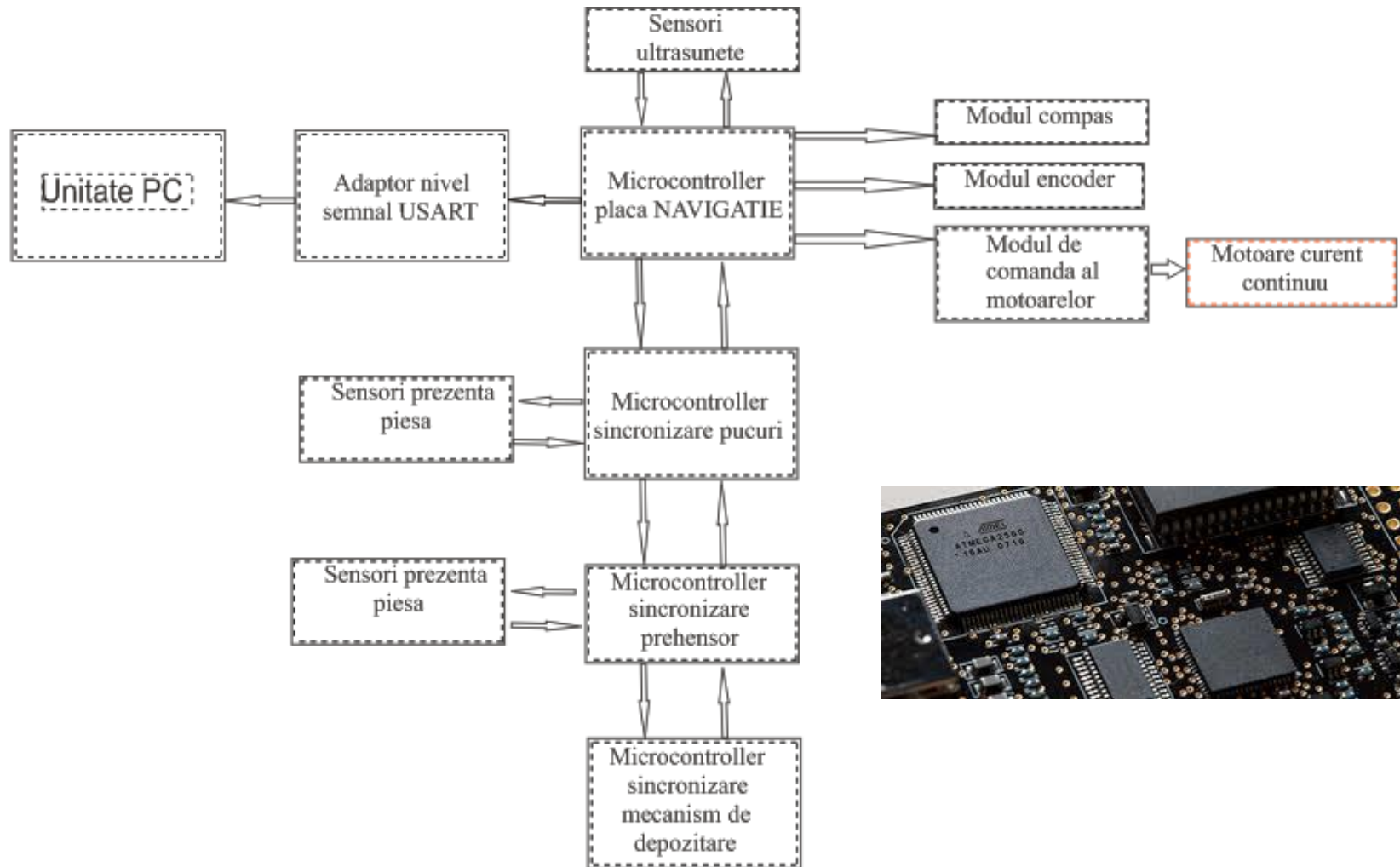
- Principalele module dezvoltate sunt:
 - **Modulul de navigație**
 - **Modulul de comanda al prehensorului.**
 - **Modului de sincronizare al elementelor in zona de intrare.**
 - **Modului de deversare al structurii, realizate cu ajutorul prehensorului.**
- Componente obligatorii:
 - **Buton de urgență**
 - **Sistem de oprire automată**
 - **Acumulatori**



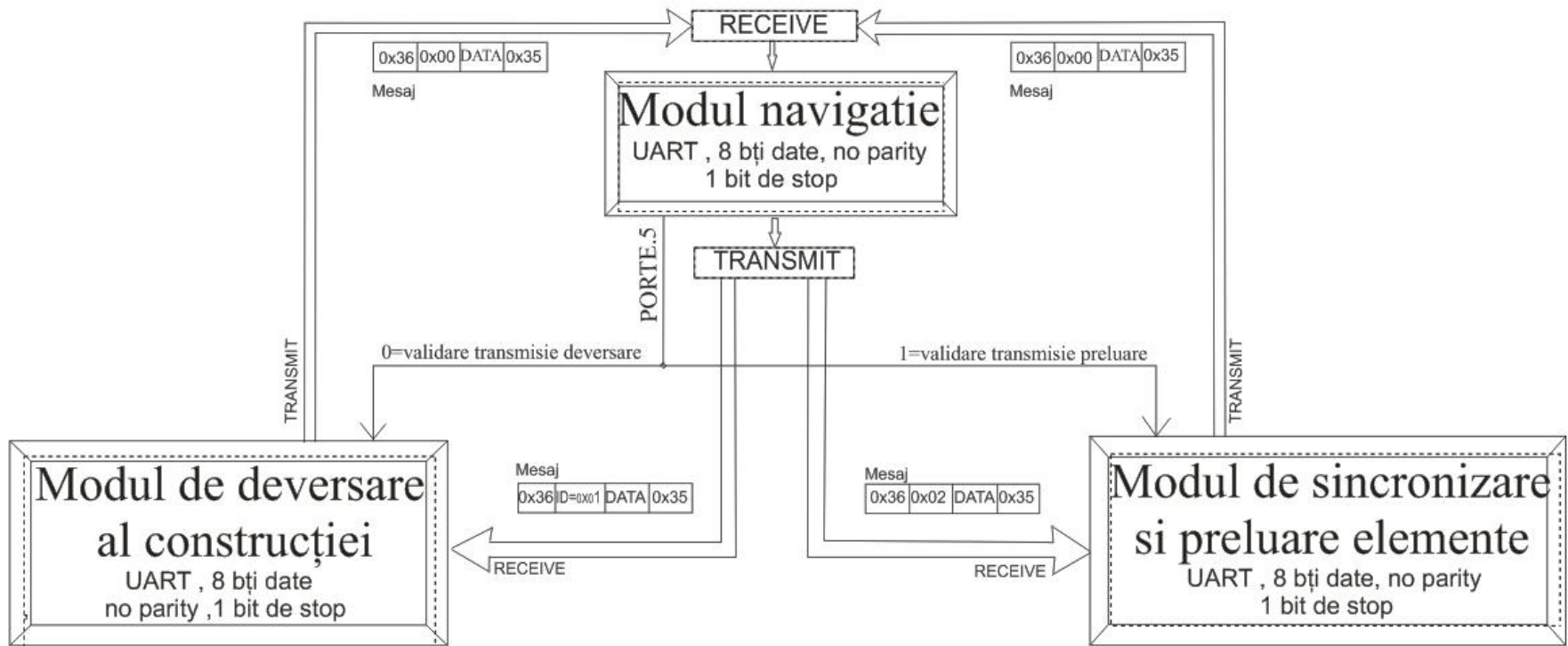
GT Robot



■ Structură – descriere generală



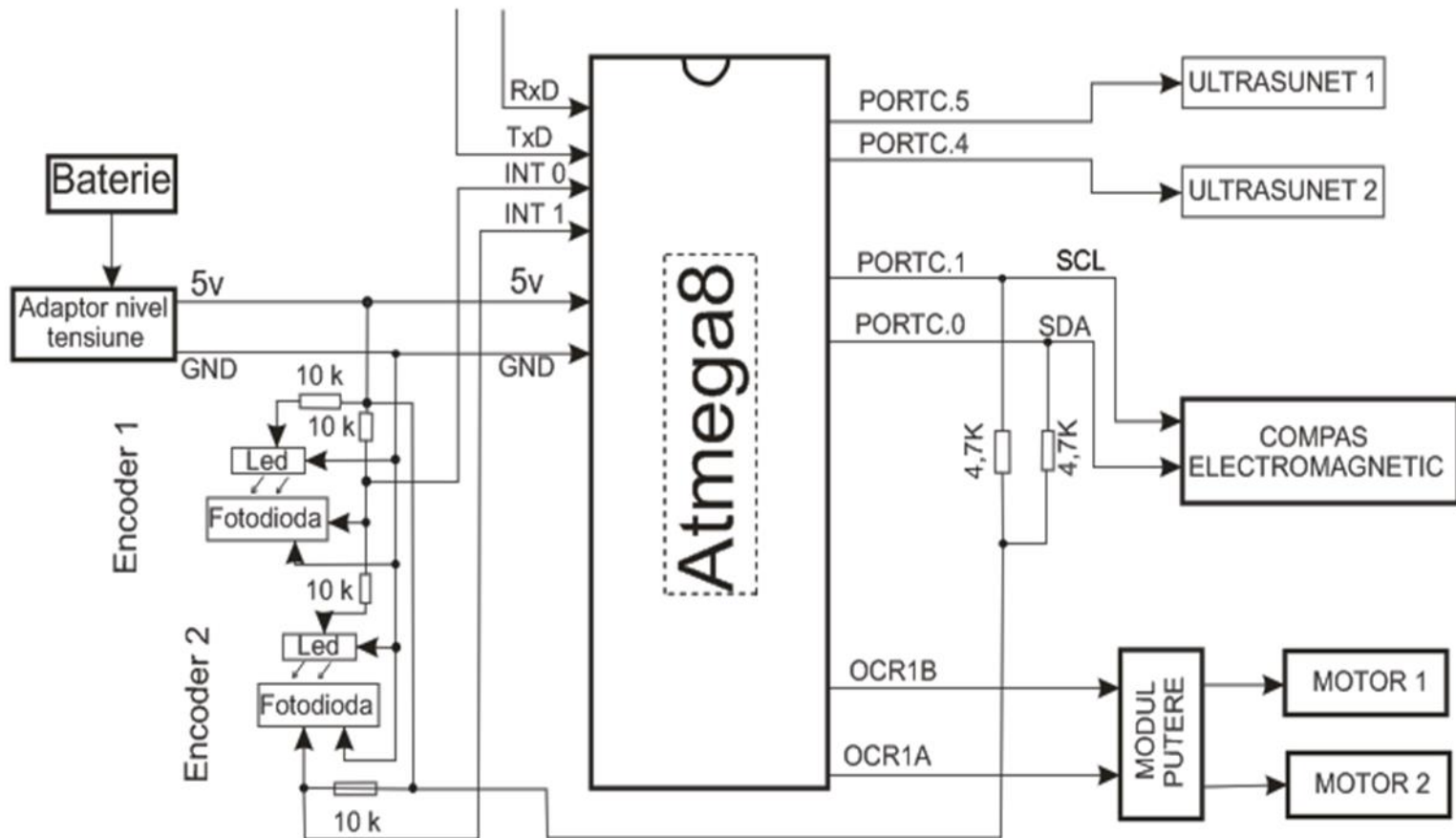
- Sistemul de comunicație
 - Utilizat la transferul de date între diferite module



GT Robot

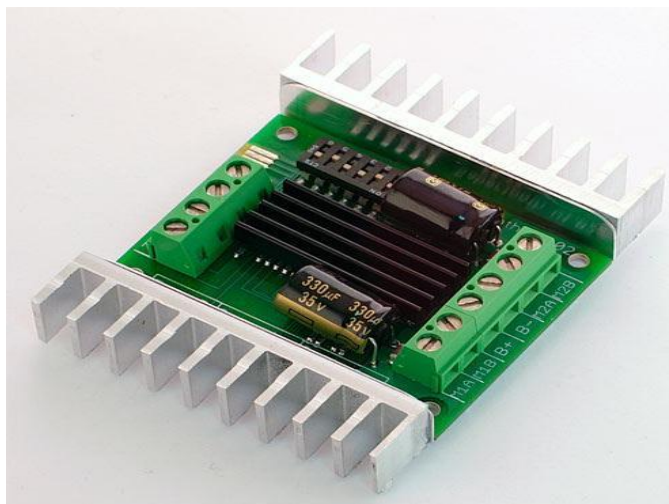


- Sistemul de control pentru deplasarea pe suprafața de joc



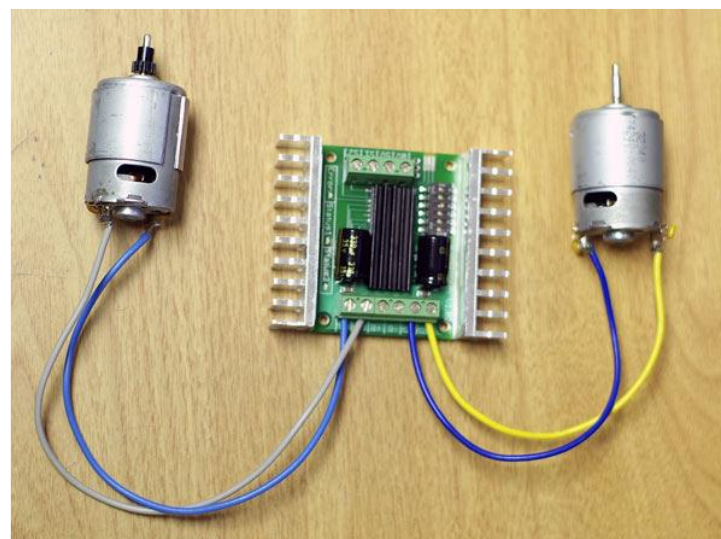
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- Driver control motoare cc



- „Sabertooth 2X10 Regenerative Dual Channel Motor Controller”
- Tensiune de alimentare: 0-24 Vcc

- Curent maxim de ieşire: 10A pe fiecare canal(curent de vârf de max. 15 A pentru un interval scurt, la o tensiune de 18V fără răcitoare suplimentare)



GT Robot

- Encoder optic

- Diametru roata: 80mm
- Număr fante: 60
- Pereche: led și fototranzistor
- Rezoluție: 3mm

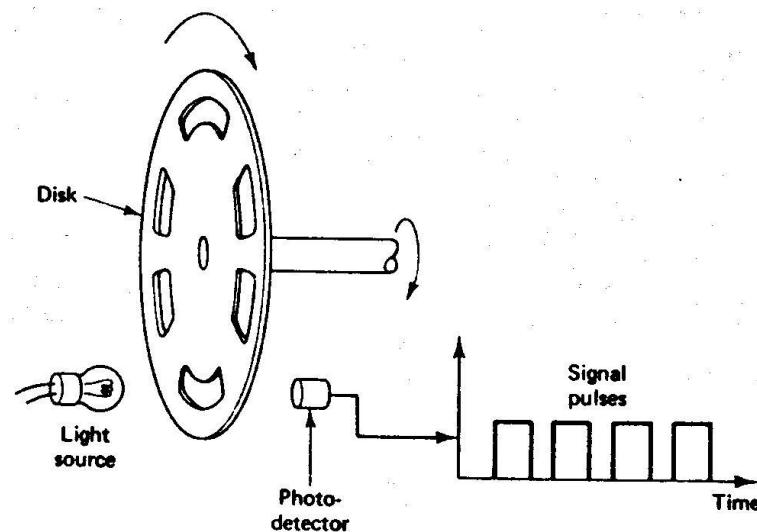
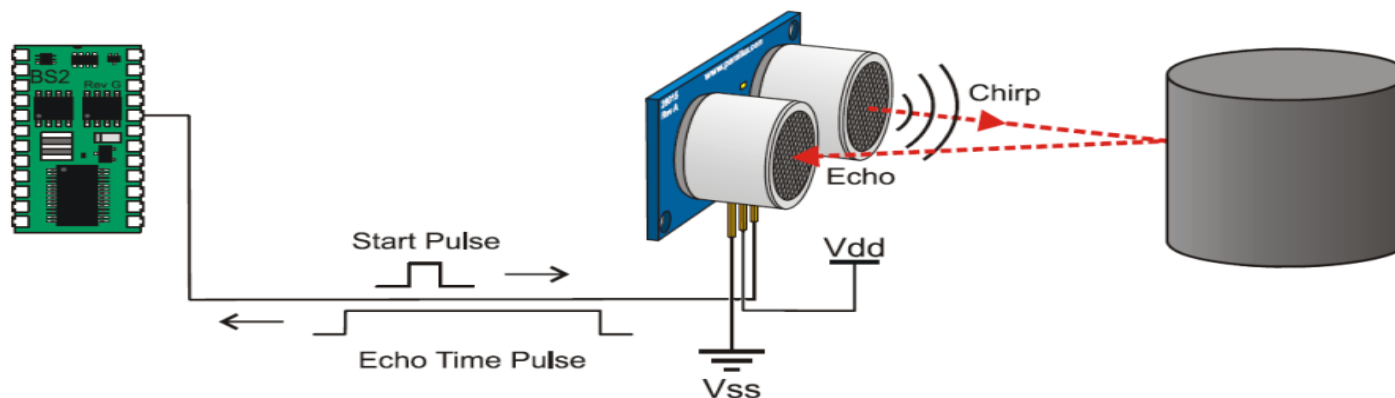


FIGURE 8.11 Optical encoder.

- Senzor cu ultrasunete

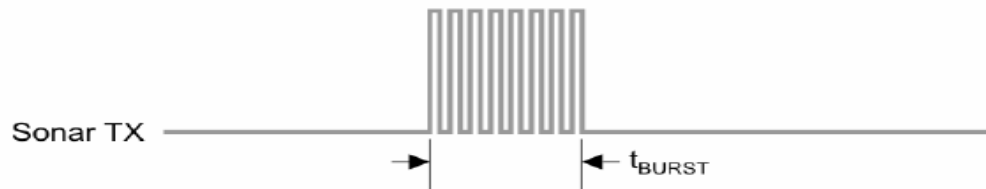
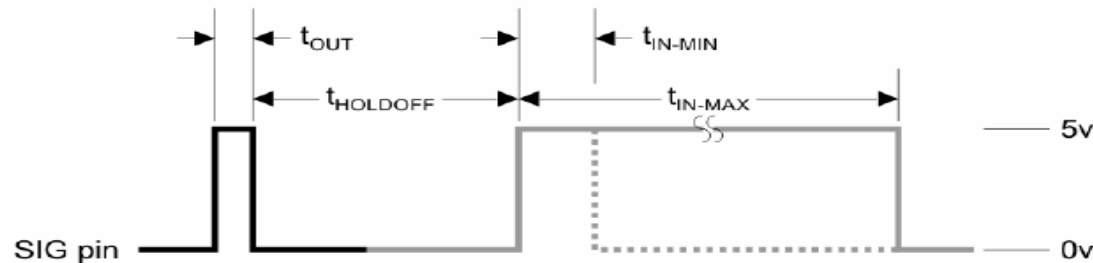


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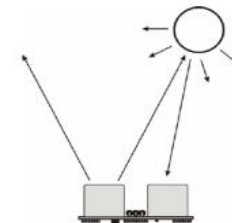
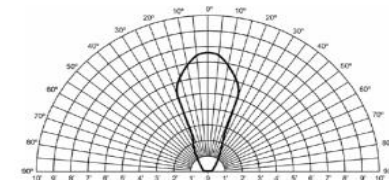
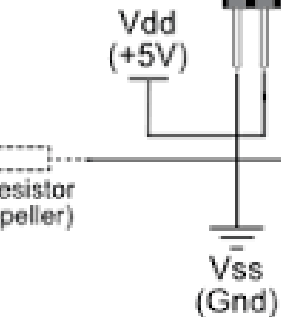
■ Senzor cu ultrasunete (Parallax - Ping)))

■ Domeniu: 2cm – 3m



— HOST
— PING

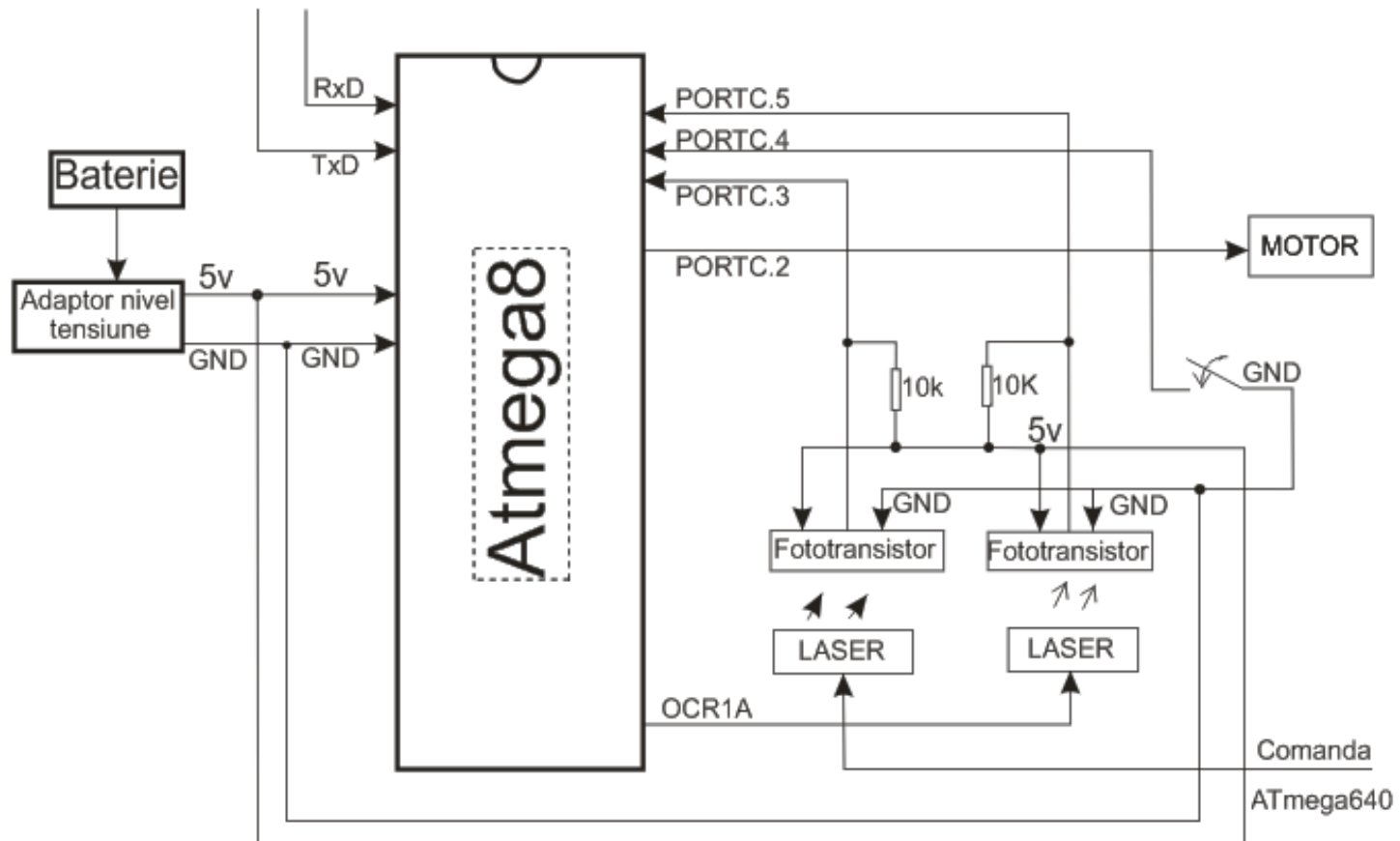
t_{OUT}	2 μ S (min), 5 μ S typical
$t_{HOLDOFF}$	750 μ S
t_{BURST}	200 μ S @ 40 kHz
t_{IN-MIN}	115 μ S
t_{IN-MAX}	18.5 mS



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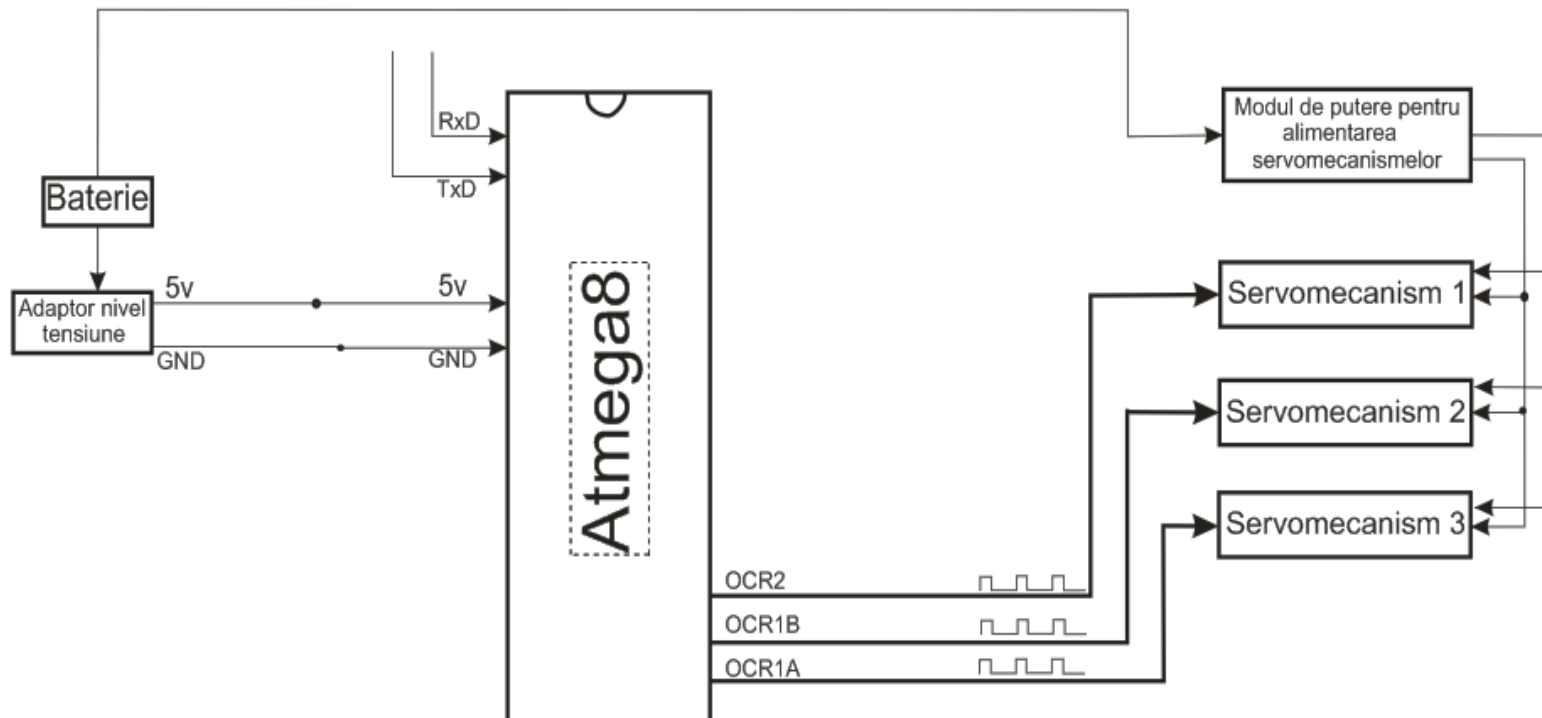


- Modulul de sincronizare al elementelor in zona de intrare



GT Robot

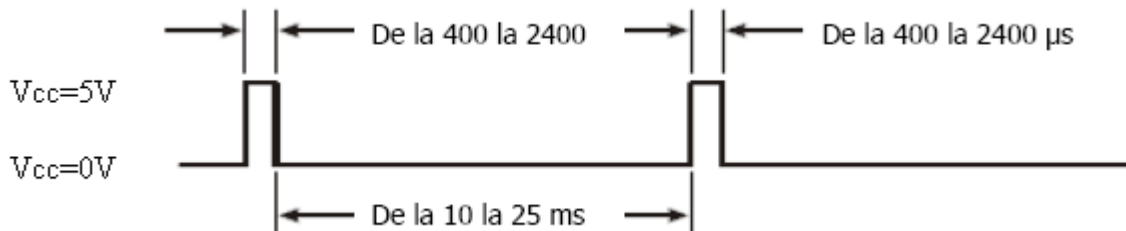
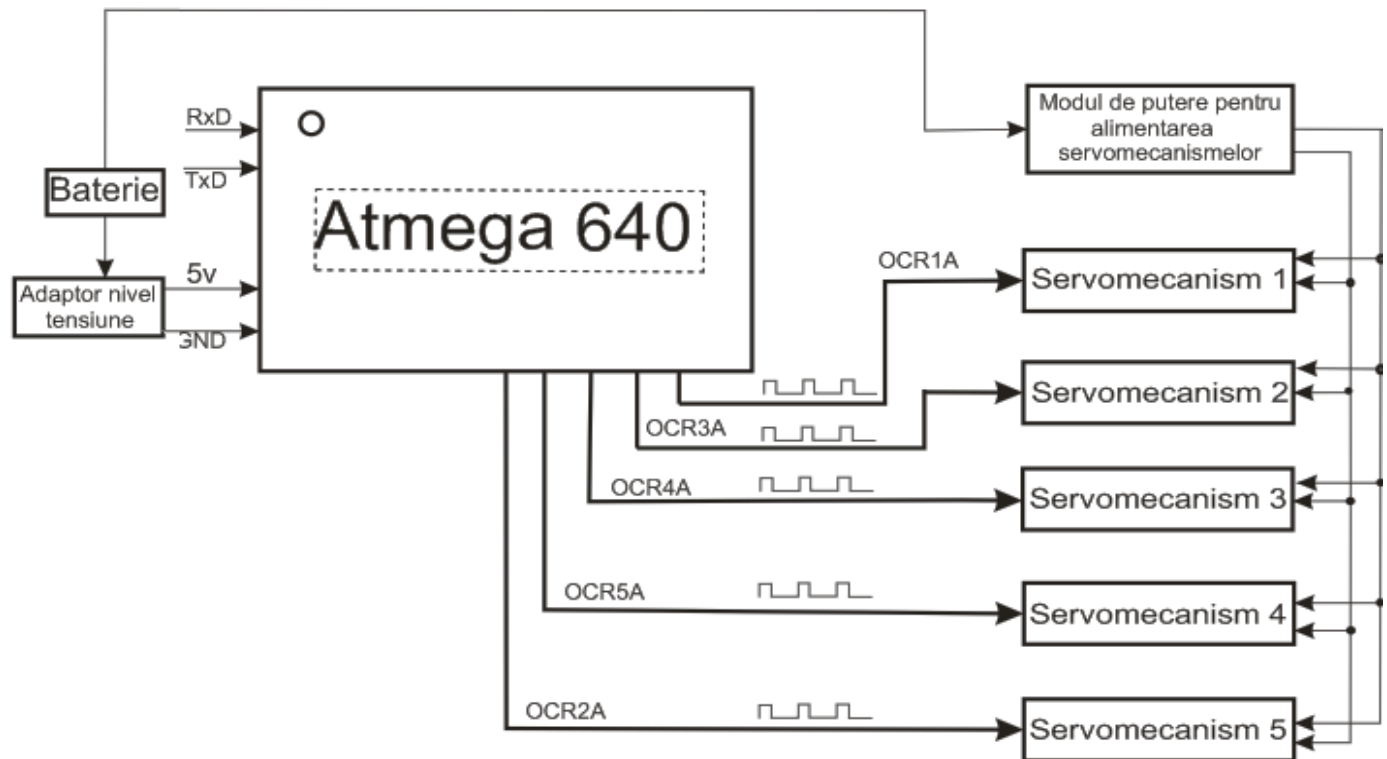
▪ Modul deversare construcție



GT Robot



▪ Modulul de comanda al prehensorului



GT Robot



- Teste robot



GT Robot



- Teste robot



GT Team



- Componentă echipă
- **Cociaș Tiberiu Teodor & Măceșanu Gigel**



GT Robot





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