

Projeto Interdisciplinar Guiado por Luz

Equipe:

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Thiago Batista Araújo

Samuel Bárbara

CURSO TÉCNICO EM MECATRÔNICA

1º ANO / 2018

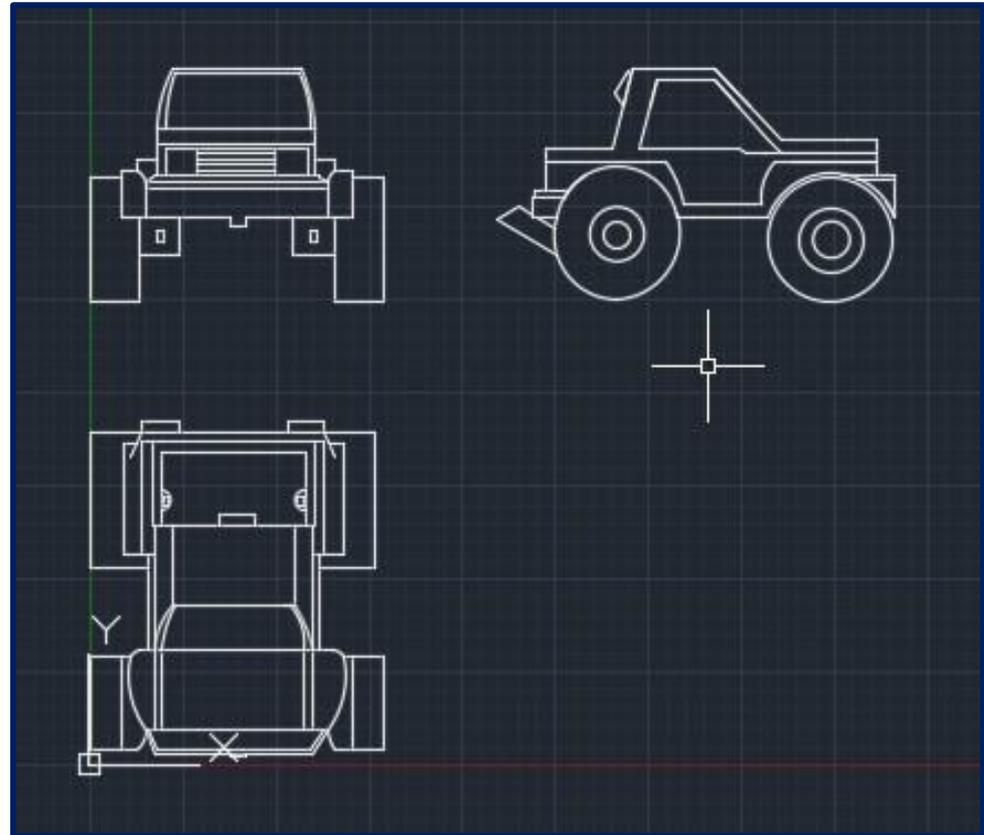
Etapa 1: Estado da Arte

Robô Seguidor de Luz

PROJETO 1

Equipe: Guilherme Silva, Igor Daniel e Leandro

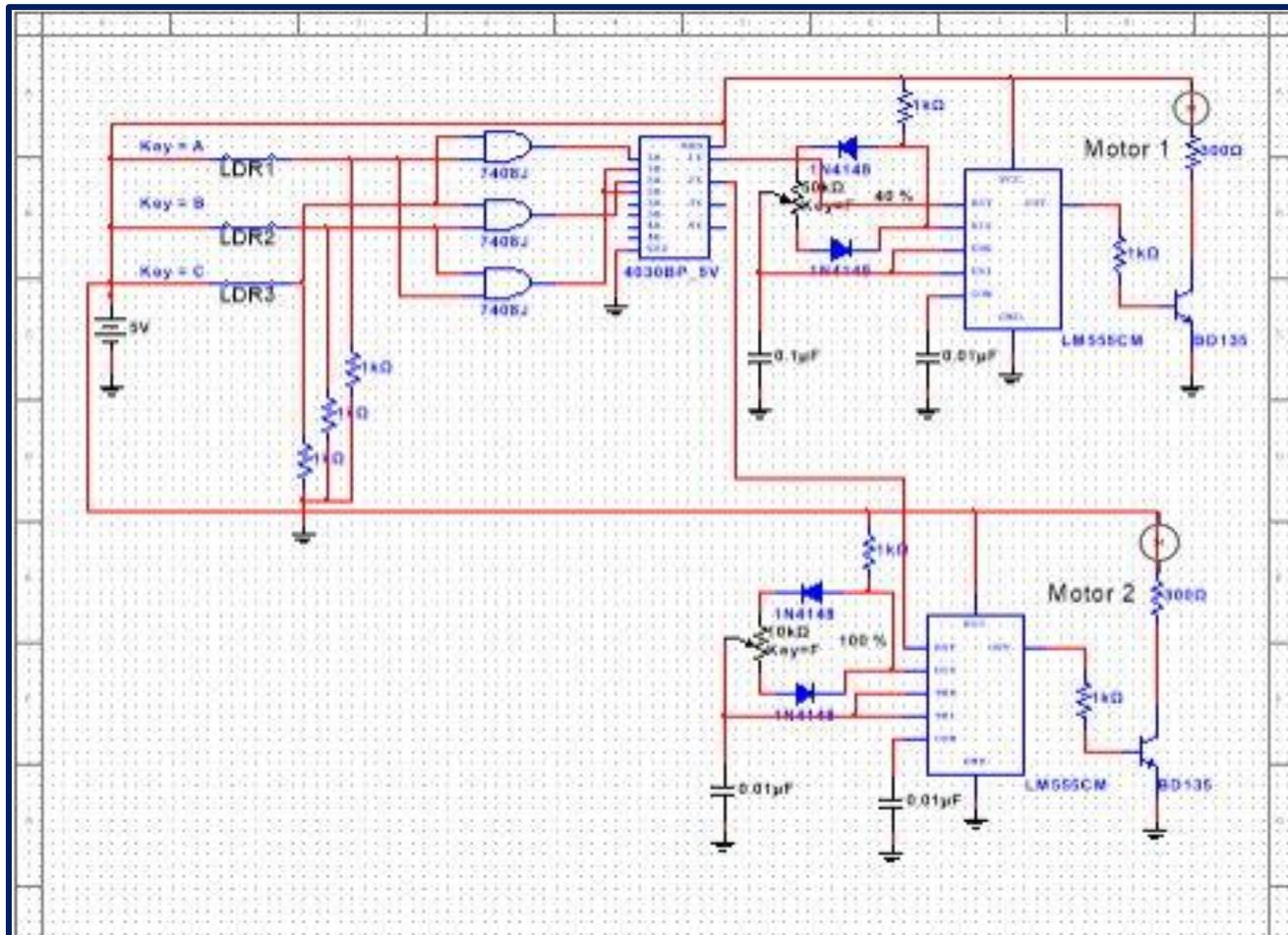
Mecânica



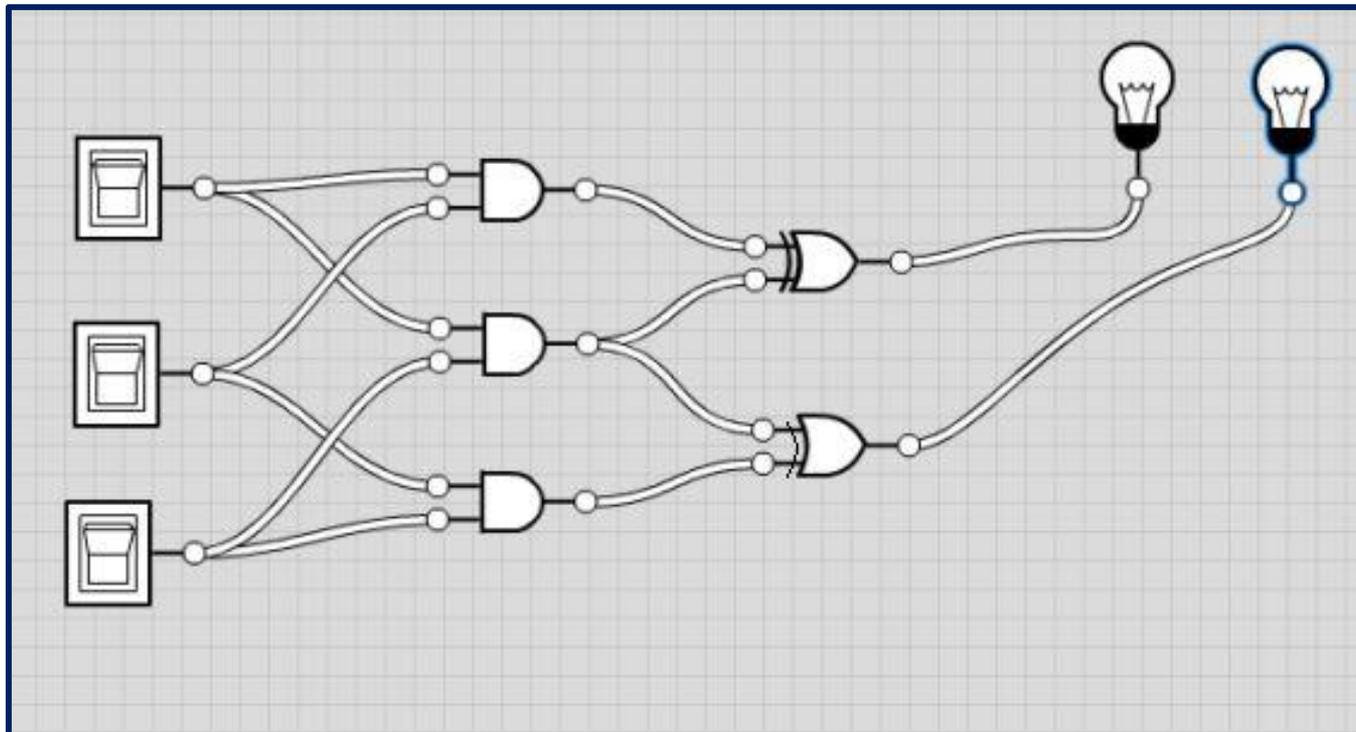
Imagens



Circuito Eletrônico



Circuito Digital



Componentes e Custo

Componentes

- 3 Sensores LDRs
- 1 Bateria de 9V
- 7 Resistores 1k Ω
- 2 Resistores 300 Ω
- 1 Resistor 50k Ω
- 1 Resistor 10 k Ω
- 1 CI CD4030

Custo

- R\$01,20 (un: R\$00,40)
- R\$13,80
- R\$00,35 (un: R\$00,05)
- R\$00,12 (un: R\$00,06)
- R\$00,09
- R\$00,05
- R\$02,04

Componentes e Custo

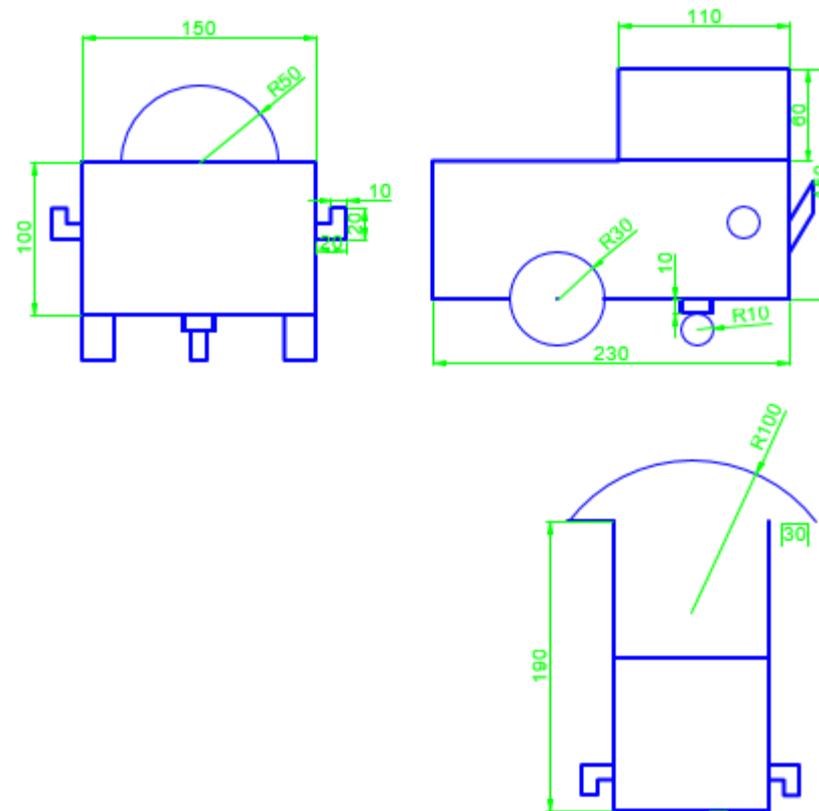
Componentes	Custo
• 1 CI TTL7408	• R\$09,00
• 2 CIs LM555	• R\$03,00 (un: R\$01,50)
• 2 Transístores NPN-BD 135	• R\$05,50 (un: R\$02,75)
• 2 Rodas DC Motorizadas	• R\$30,00 (un: R\$15,00)
• 1 Carrinho de brinquedo	
• 1 Placa de fenolite	• R\$04,00
• 4 Diodos 1N4	• 0,71

Custo Total Estimado: R\$76,62

PROJETO 2

Equipe: João Paulo Biaso, Filipe Fernandes e Felipe Bragagão

Mecânica



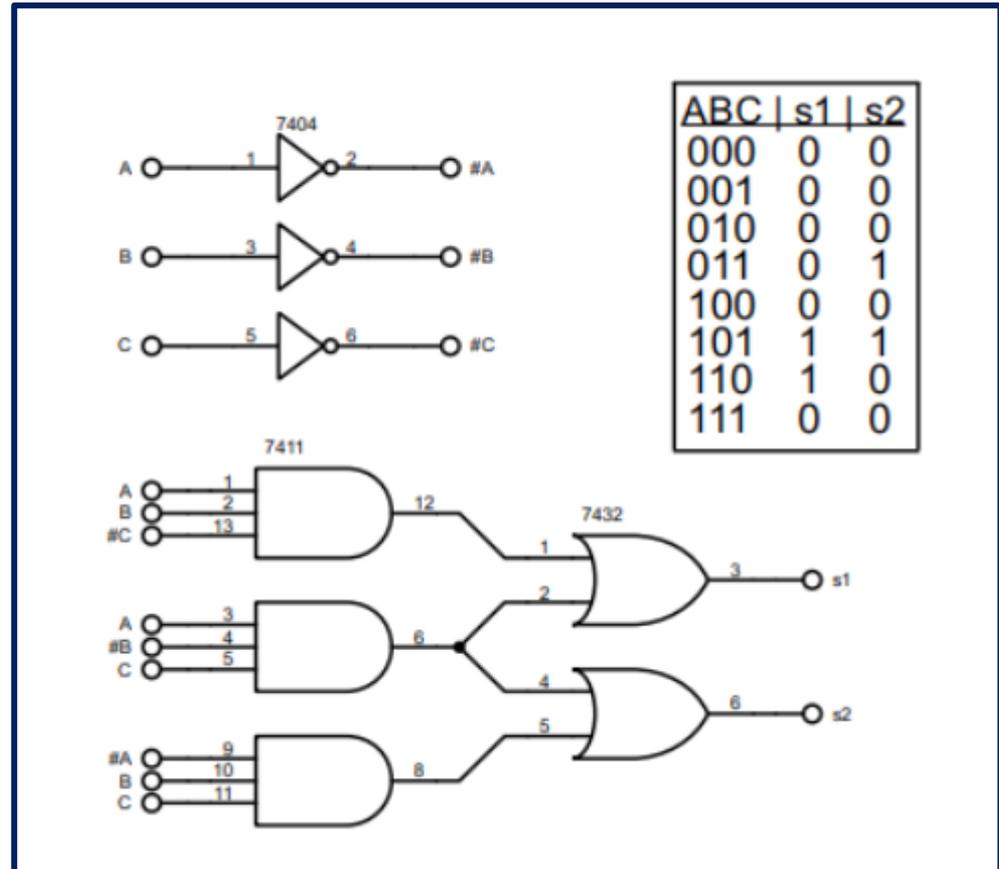
Imagens



Circuito Eletrônico



Circuito Digital



Circuito Digital

Tabela Verdade

Sensores (LDR's)			Motores DC	
Sa	Sb	Sc	M1	M2
0	0	0	0	0
0	0	1	0	0
0	1	0	0	0
0	1	1	0	1
1	0	0	0	0
1	0	1	1	1
1	1	0	1	0
1	1	1	0	0

Equações Booleanas

$$S1(M1) = (A.\bar{B}.C) + (A.B.\bar{C})$$

$$S2(M2) = (\bar{A}.B.C) + (A.\bar{B}.C)$$

Componentes e Custo

Componentes	Custo
• Palitos de picolé	• un: R\$00,15
• Canos PVC	• R\$03,00 (un: R\$01,00)
• Placa de acrílico	• R\$10,00
• Papel E.V.A.	• un: R\$03,50
• 2 Rodas DC Motorizadas	• R\$30,00 (un: R\$15,00)
• 1 Placa padrão	• R\$10,00

Componentes e Custo

Componentes	Custo
• 1 Bateria de 5V	• R\$04,97
• 3 Sensores LDRs	• R\$01,92 (un: R\$00,64)
• 4 Pilhas de 1,5V	• R\$13,90 (un: R\$03,47)
• 4 Potenciômetros 10k Linear	• R\$02,38 (un: R\$00,79)
• 2 Transístores TIP122 NPN	• R\$03,52 (un: R\$01,76)
• 6 Resistores 1k Ω	• R\$01,44 (un: R\$00,24)

Componentes e Custo

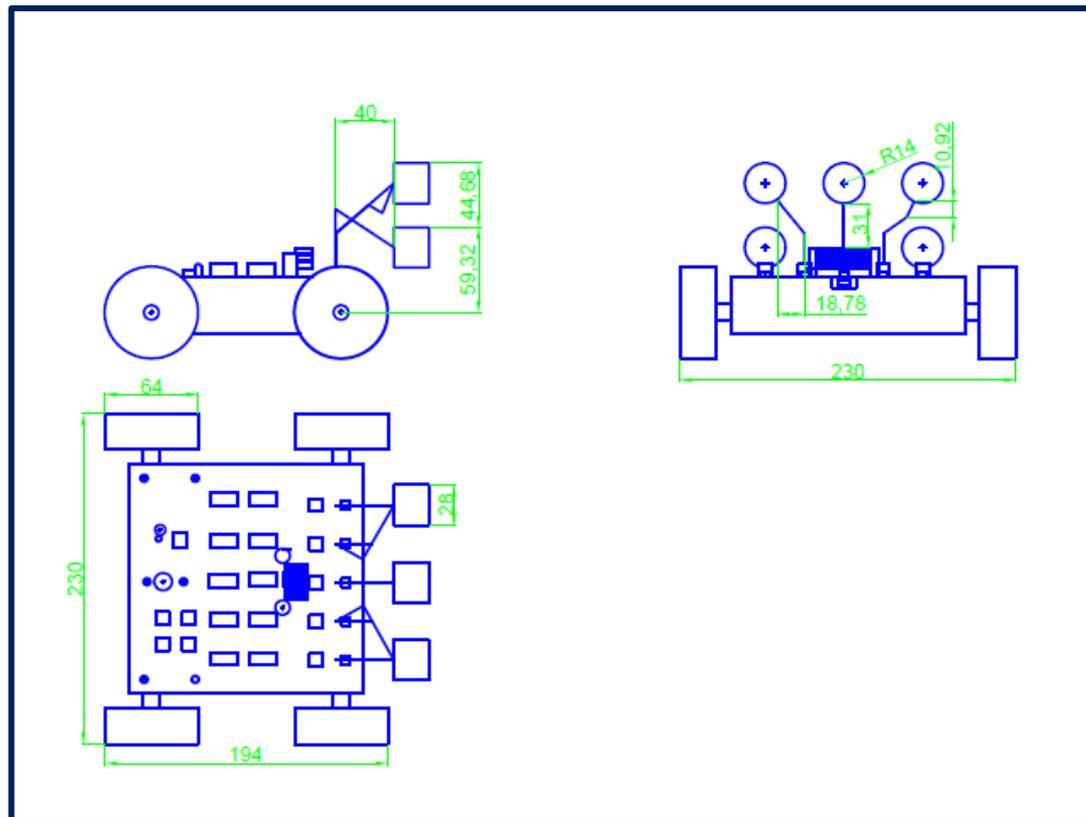
Componentes	Custo
• 1 Roda “boba”	• R\$08,90
• 2 Resistores 560Ω	• R\$00,18 (un: R\$00,09)
• 2 CIs TTL7411	• R\$03,60 (un: R\$01,80)
• 1 CI TTL7432	• R\$09,60
• 1 Chave gangorra On/Off	• R\$01,80
• 1 CI TTL7404	• R\$09,50

Custo Total Estimado 114,21

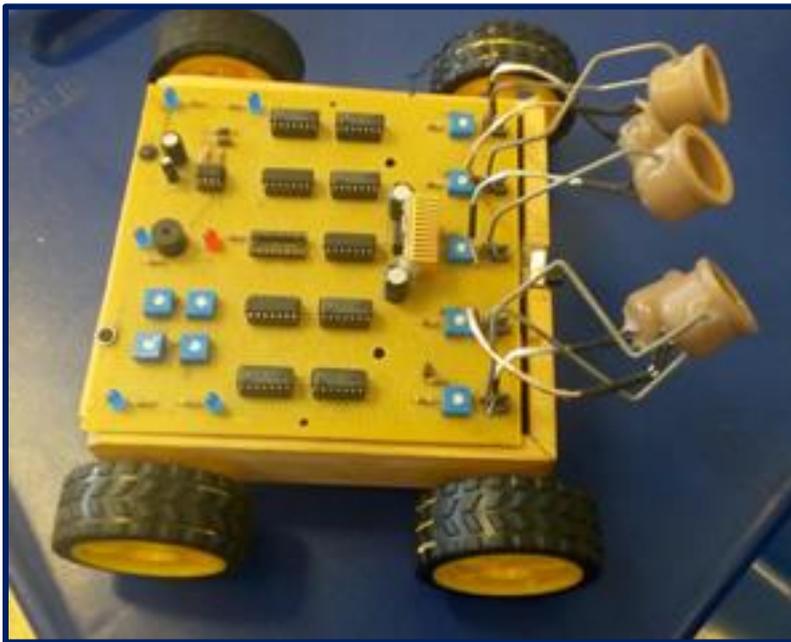
PROJETO 3

Equipe: Hadler Henrique, João Zolini e Guilherme Afonso

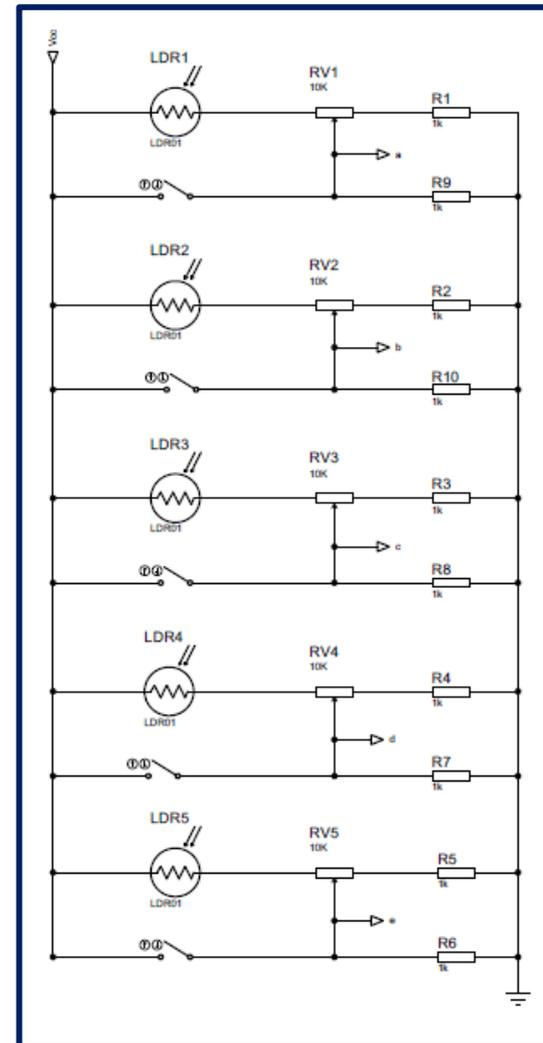
Mecânica



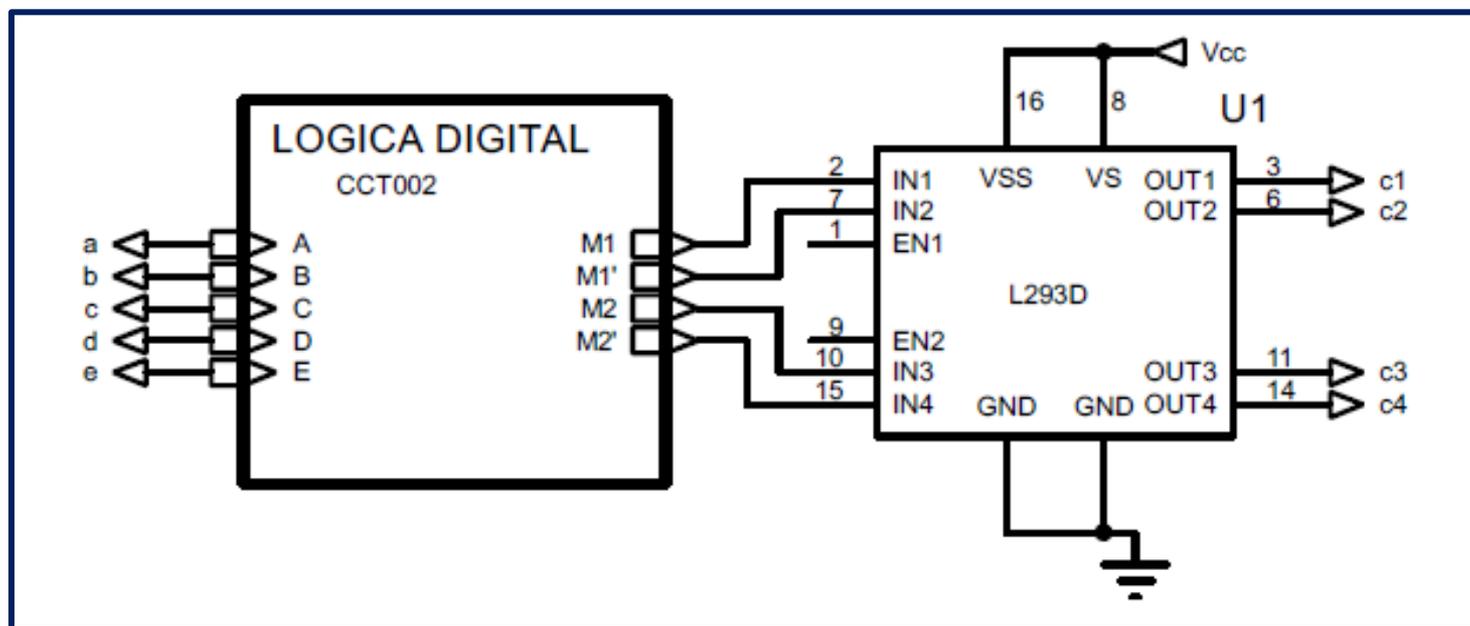
Imagens



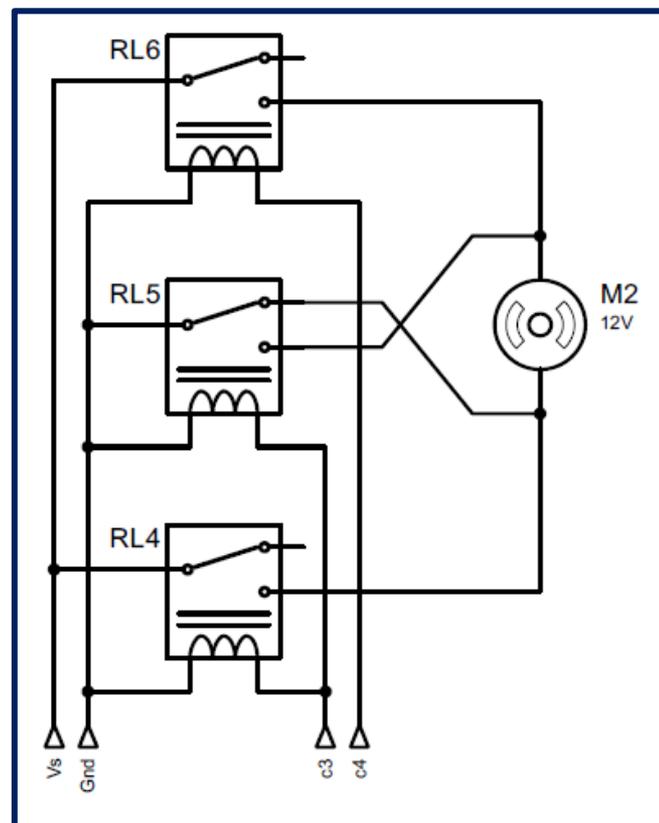
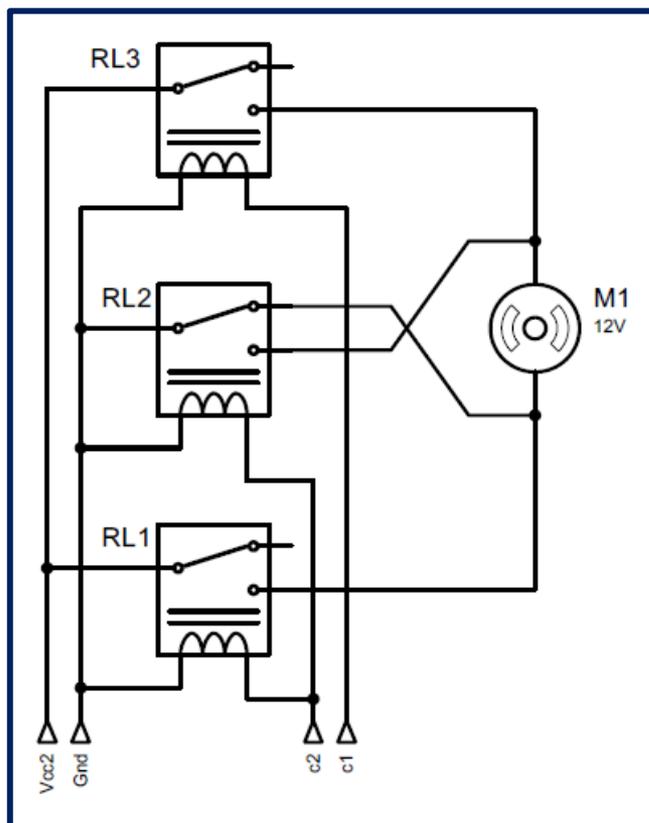
Circuito Eletrônico



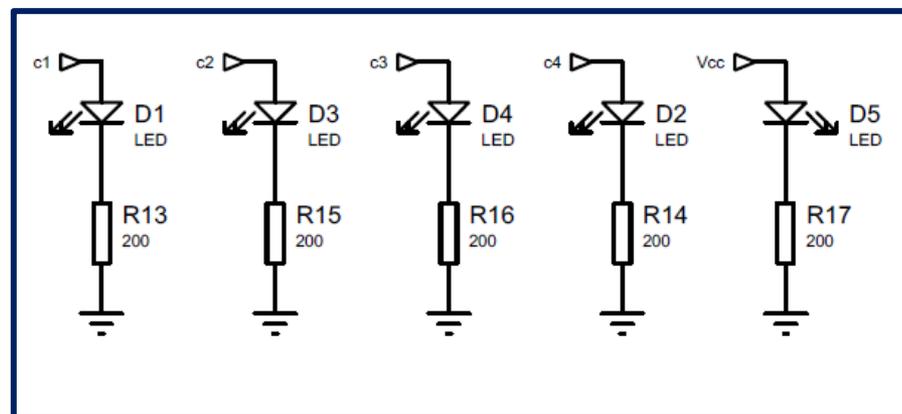
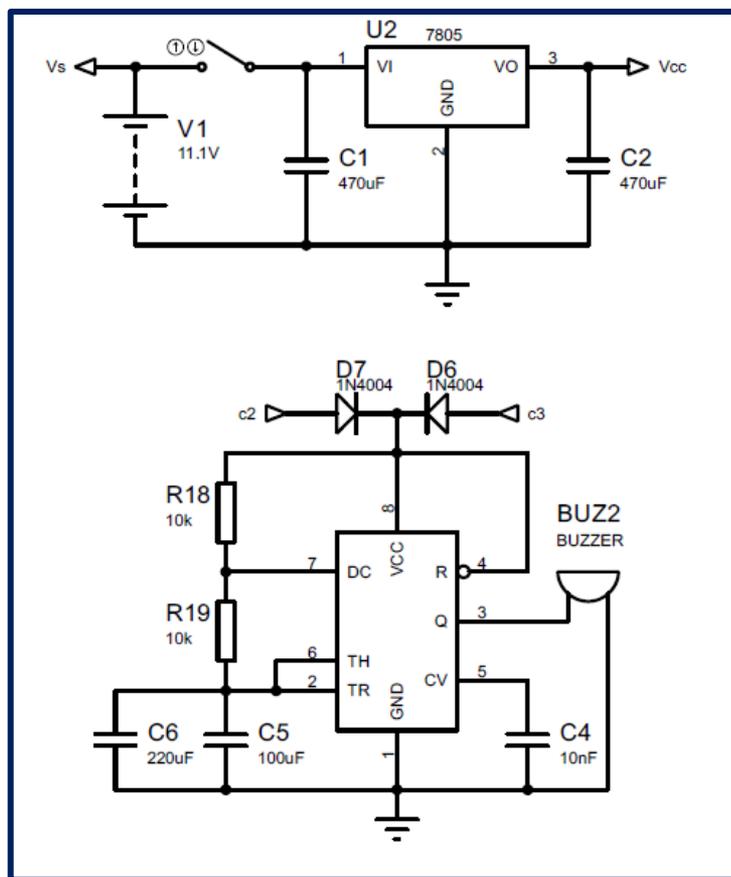
Circuito Eletrônico



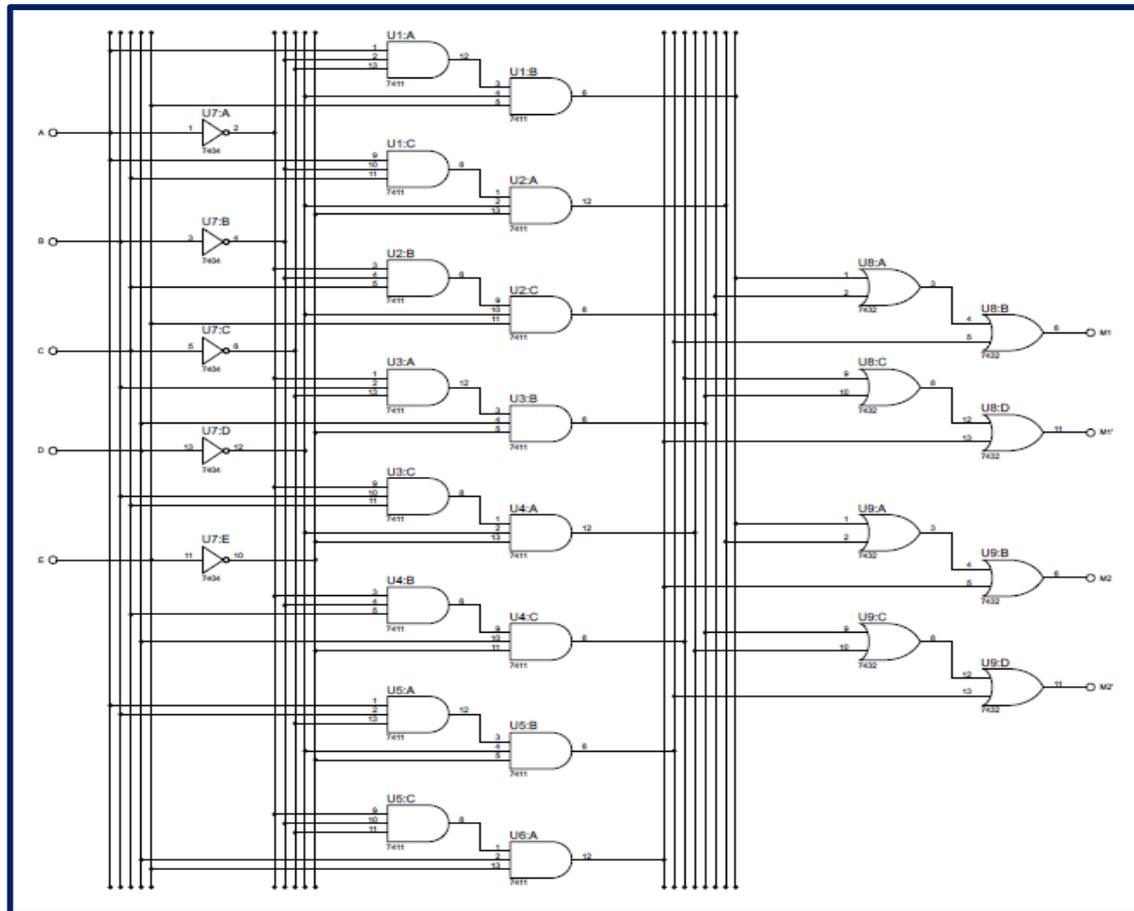
Circuito Eletrônico



Circuito Eletrônico



Circuito Digital



Circuito Digital

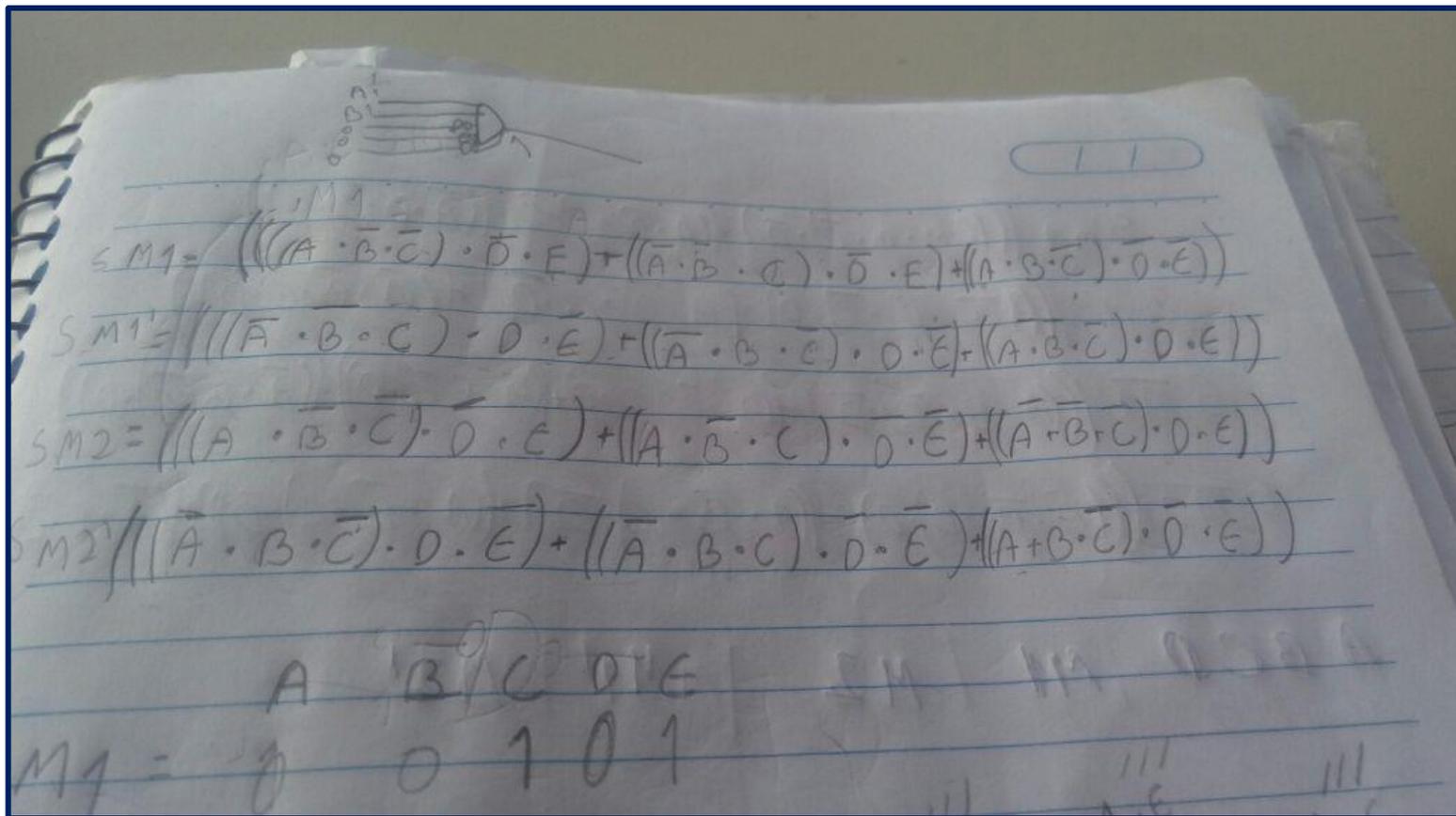


Tabela Verdade

A	B	C	D	E	M1	M2	M1'	M2'	
0	0	0	0	0	0	0	0	0	
0	0	0	0	1	0	0	0	0	
0	0	0	1	0	0	0	0	0	
0	0	0	1	1	0	1	1	0	Girar no próprio eixo horário
0	0	1	0	0	1	0	0	0	
0	0	1	0	1	1	0	0	0	Esquerda
0	0	1	1	0	0	0	1	0	Esquerda para trás
0	0	1	1	1	0	0	0	0	
0	1	0	0	0	0	0	0	0	
0	1	0	0	1	0	0	0	0	
0	1	0	1	0	0	0	1	1	Ré
0	1	0	1	1	0	0	0	1	
0	1	1	0	0	0	0	0	1	Direita para trás
0	1	1	0	1	0	0	0	0	
0	1	1	1	0	0	0	0	0	
0	1	1	1	1	0	0	0	0	
1	0	0	0	0	0	0	0	0	
1	0	0	0	1	1	1	0	0	Para frente
1	0	0	1	0	0	0	0	0	
1	0	0	1	1	0	0	0	0	
1	0	1	0	0	0	1	0	0	Direita
1	0	1	0	1	0	0	0	0	
1	0	1	1	0	0	0	0	0	
1	0	1	1	1	0	0	0	0	
1	1	0	0	0	1	0	0	1	Girar no próprio eixo anti-horário
1	1	0	0	1	1	0	0	0	
1	1	0	1	0	0	0	0	0	
1	1	0	1	1	0	0	0	0	
1	1	1	1	0	0	0	0	0	
1	1	1	1	0	0	0	0	0	
1	1	1	1	1	0	0	0	0	
1	1	1	1	1	0	0	0	0	

Componentes e Custo

Componentes

- 5 Sensores LDRs
- 4 Rodas DC motorizadas
- 1 Regulador de tensão L7805
- 6 LEDs
- 16 Resistores 1k Ω
- 5 Trimpots 10k Ω
- 6 CIs TTL7411

Custo

- R\$02,65 (un: R\$00,53)
- R\$60,00 (un: R\$15,00)
- R\$02,50
- R\$00,72 (un: R\$00,12)
- R\$01,76 (un: R\$00,11)
- R\$07,50 (un: R\$01,50)
- R\$10,80 (un: R\$01,80)

Componentes e Custo

Componentes

- 4 Trimpots 300Ω
- 2 CIs 7432
- 6 Relé
- 1 Placa padrão 15x15cm
- 1 Bateria tipo vertical 9V
- 1 Buzzer

Custo

- R\$00,80 (un: R\$00,20)
- R\$03,80 (un: R\$01,90)
- R\$51,00 (un: R\$08,50)
- R\$10,00
- R\$15,50
- R\$01,65

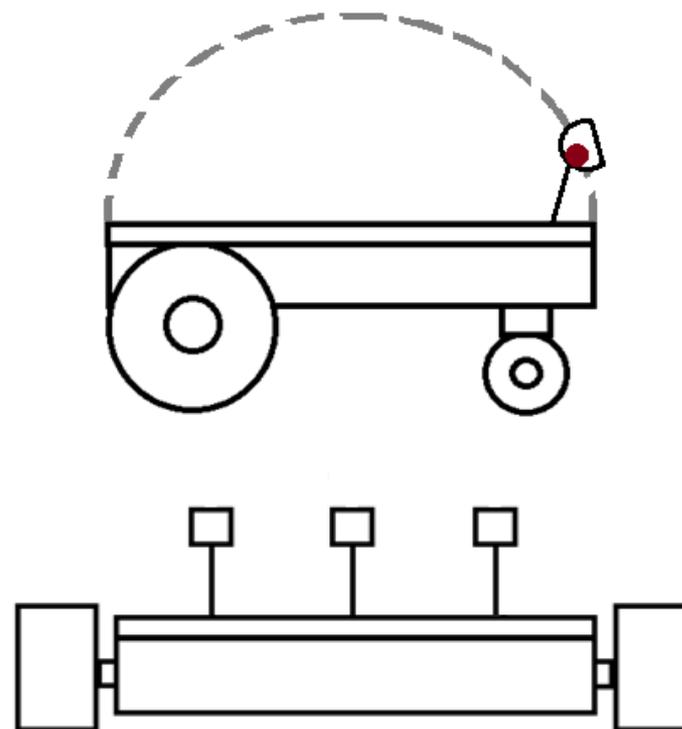
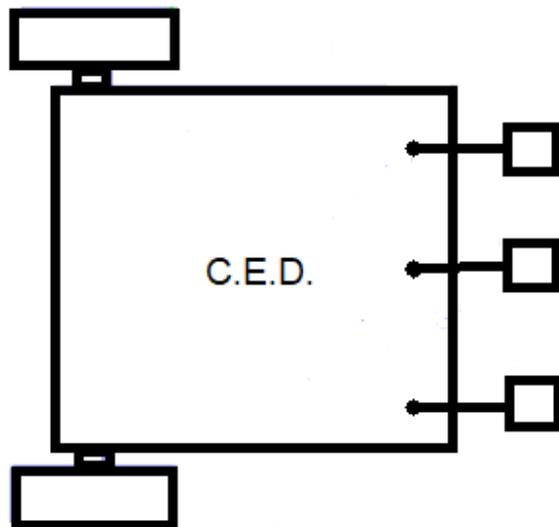
Componentes e Custo

Componentes	Custo
• 1 CI 7404	• R\$09,50
• 4 Capacitores 470pF	• R\$00,32 (un: R\$00,08)
• 1 CI LM555	• R\$01,00
• CI L293D	• R\$04,00

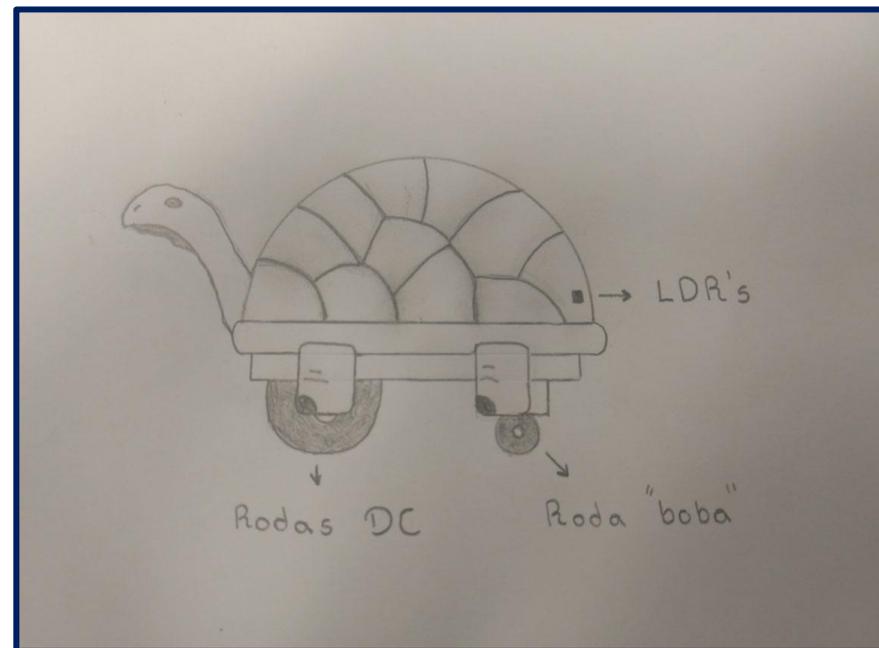
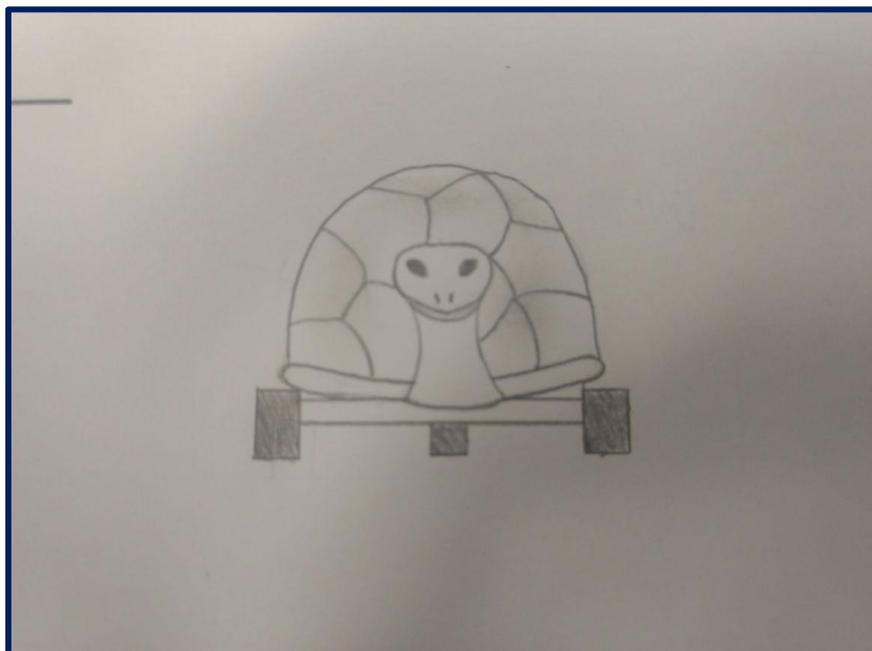
**Custo Total Estimado:
R\$203,36**

CROQUI

Croqui



Croqui



FONTES DE PESQUISA

Fontes de Pesquisa

- Mercado Livre:

<https://www.mercadolivre.com.br/>

- Baú da Eletrônica:

<http://www.baudaeletronica.com.br>

- RoboCore:

<https://www.robocore.net/loja/>

- InfoEscola:

<https://www.infoescola.com/>