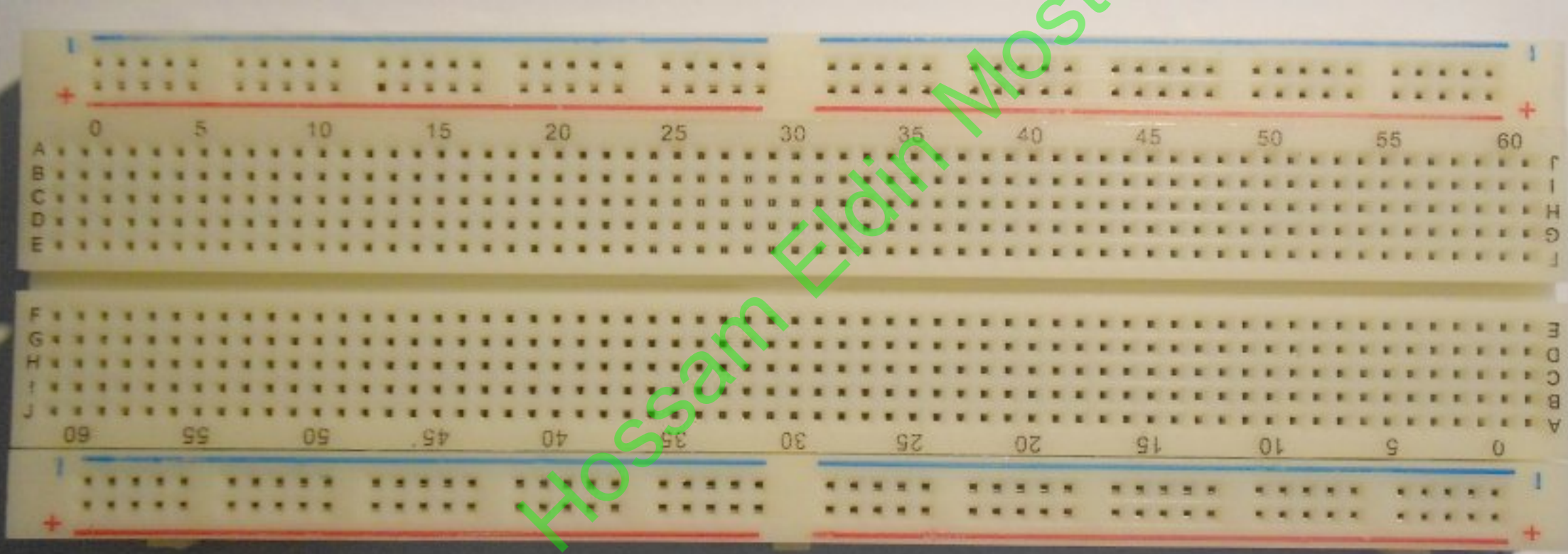
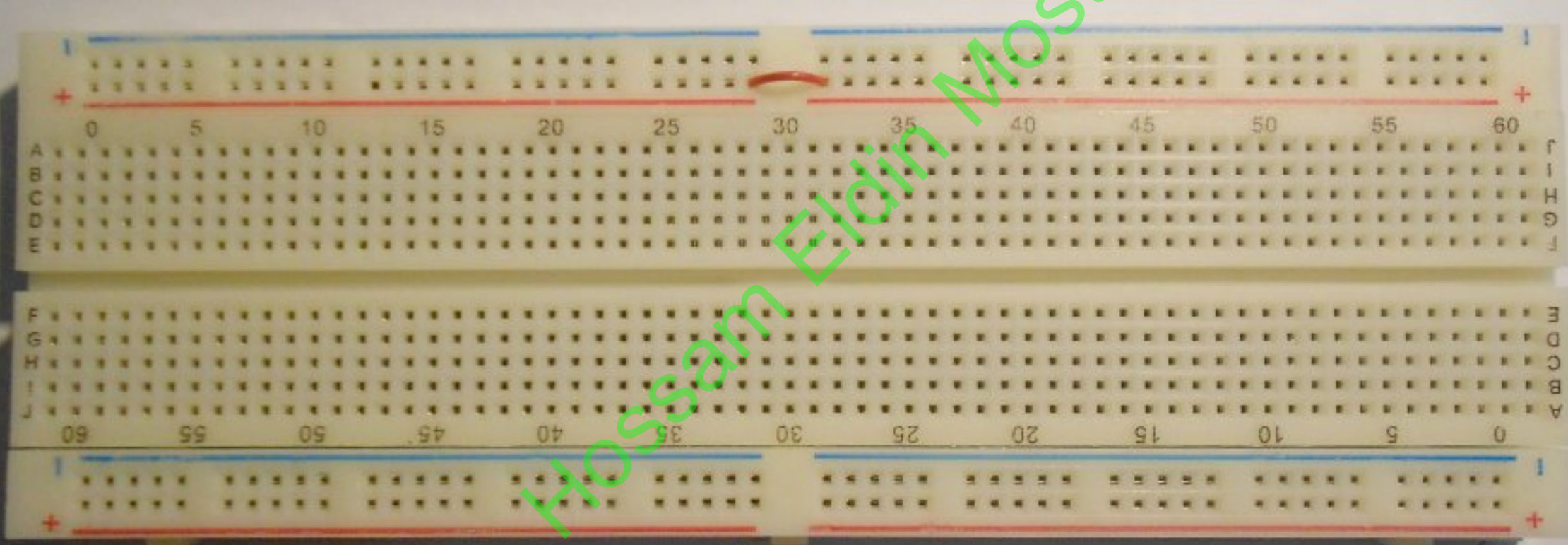


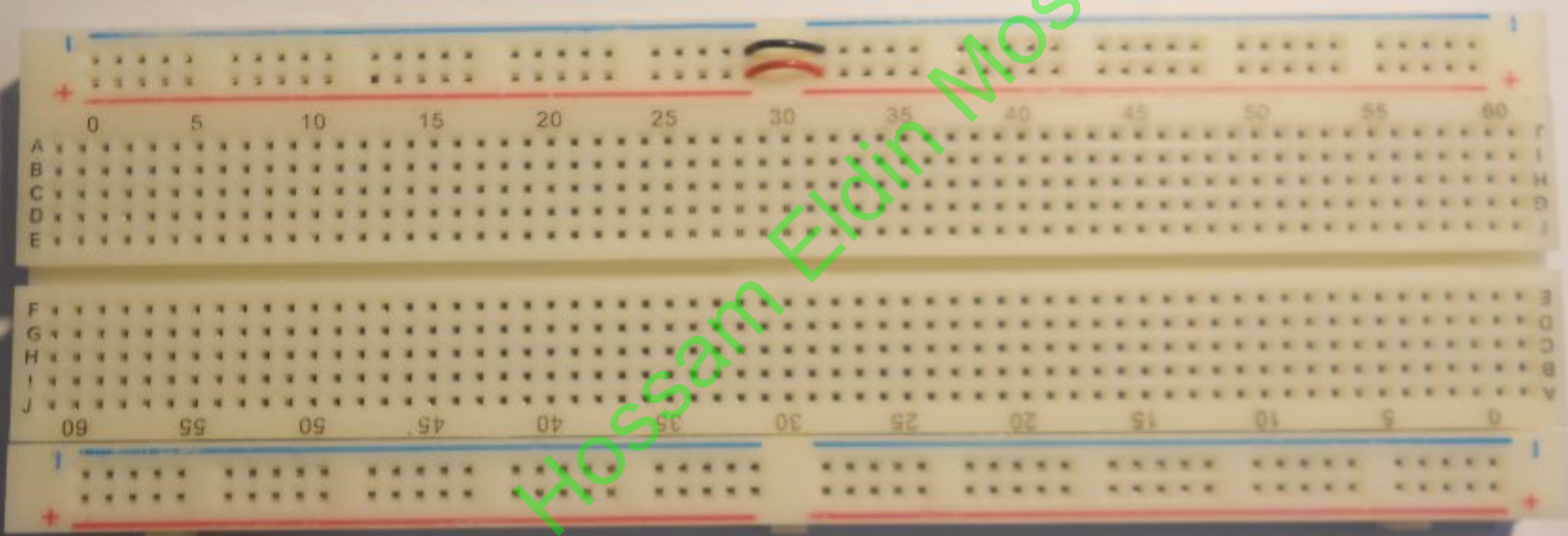
LAB 1

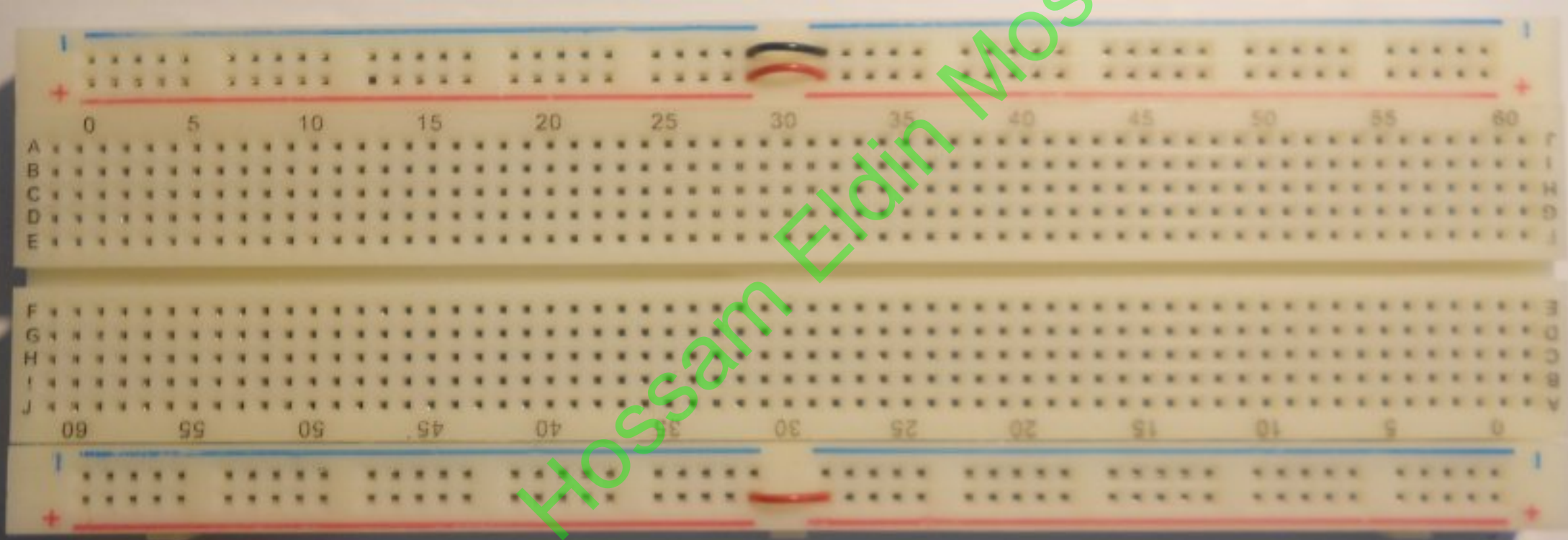
General 3.3V – 5.0V Micorcontroller/FPGA Supply, Programming, and Debugging Circuit

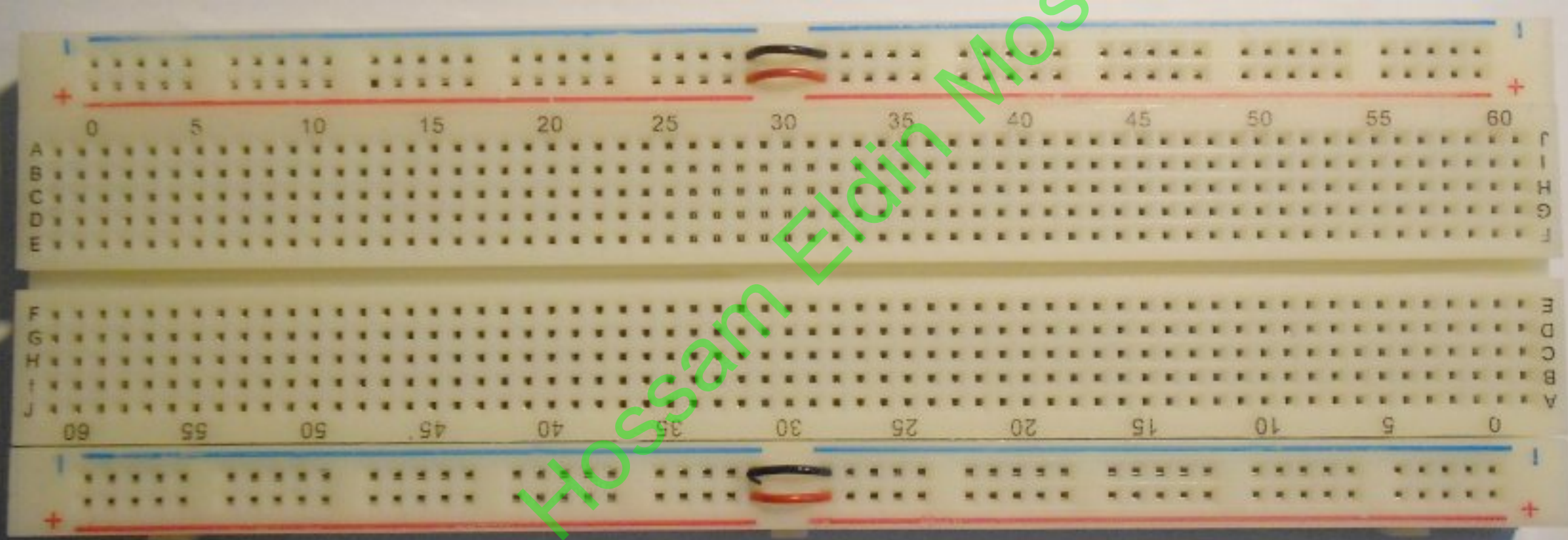
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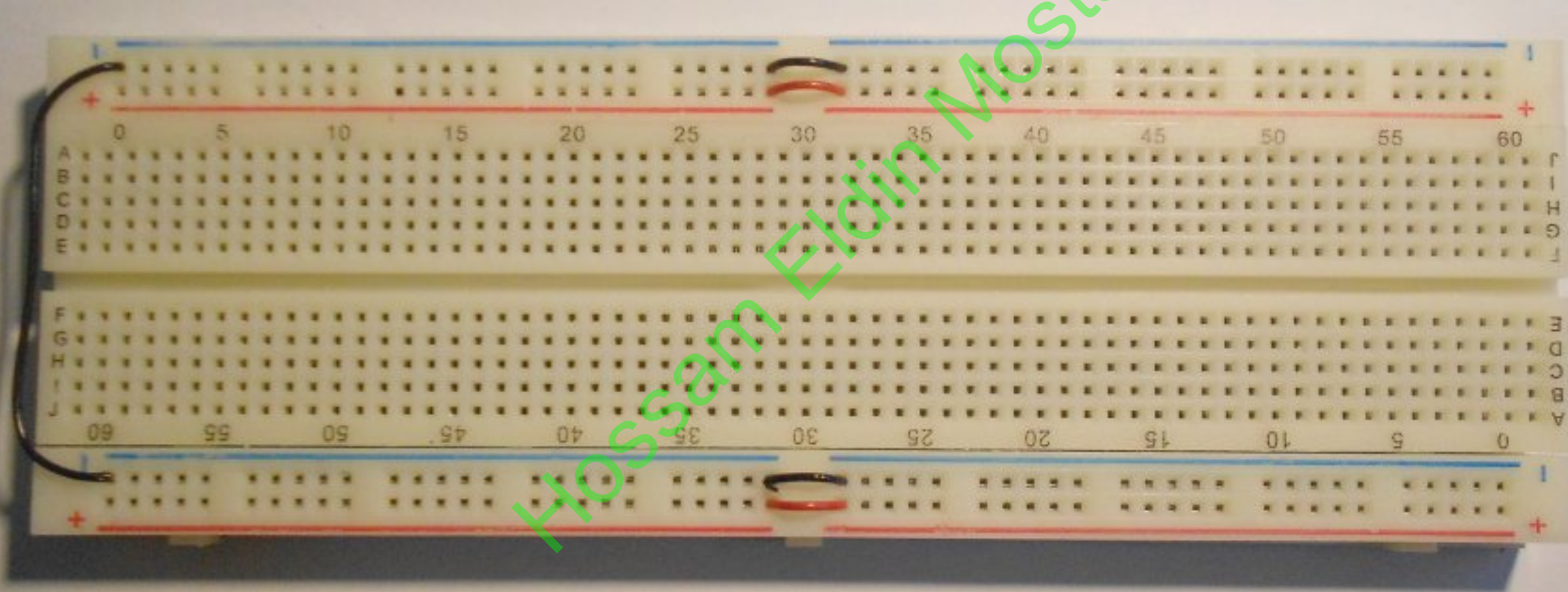


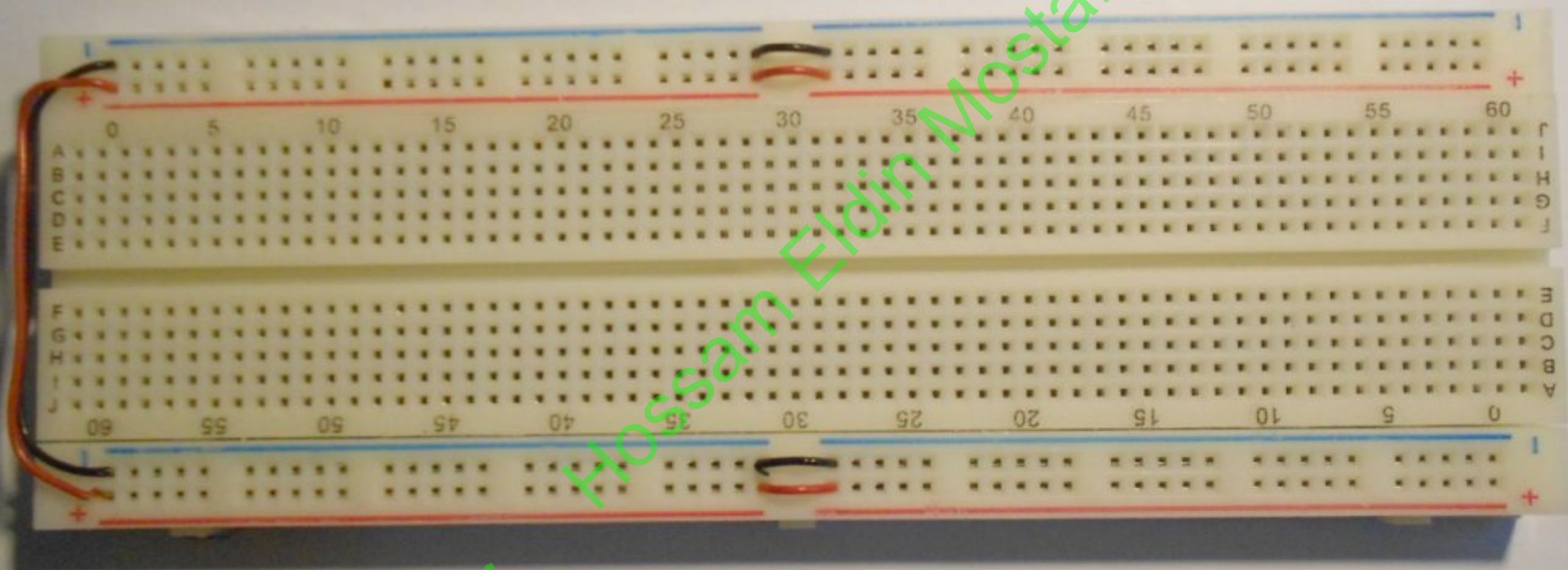


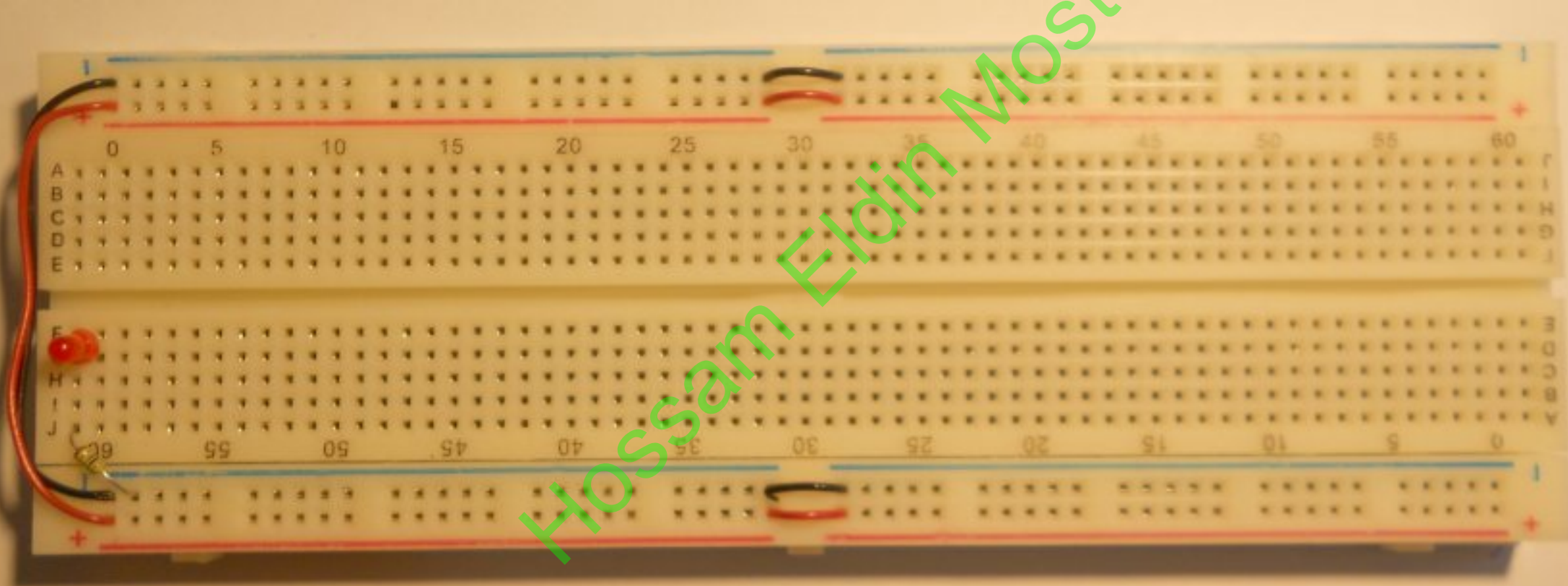


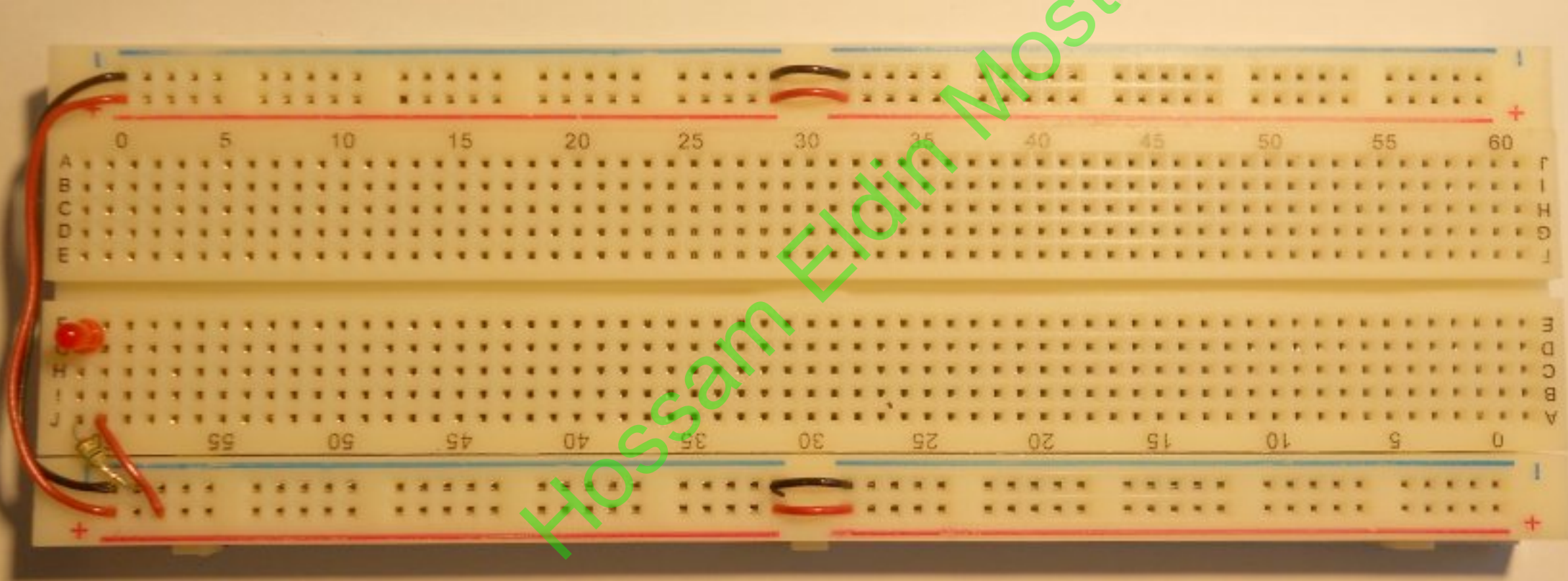


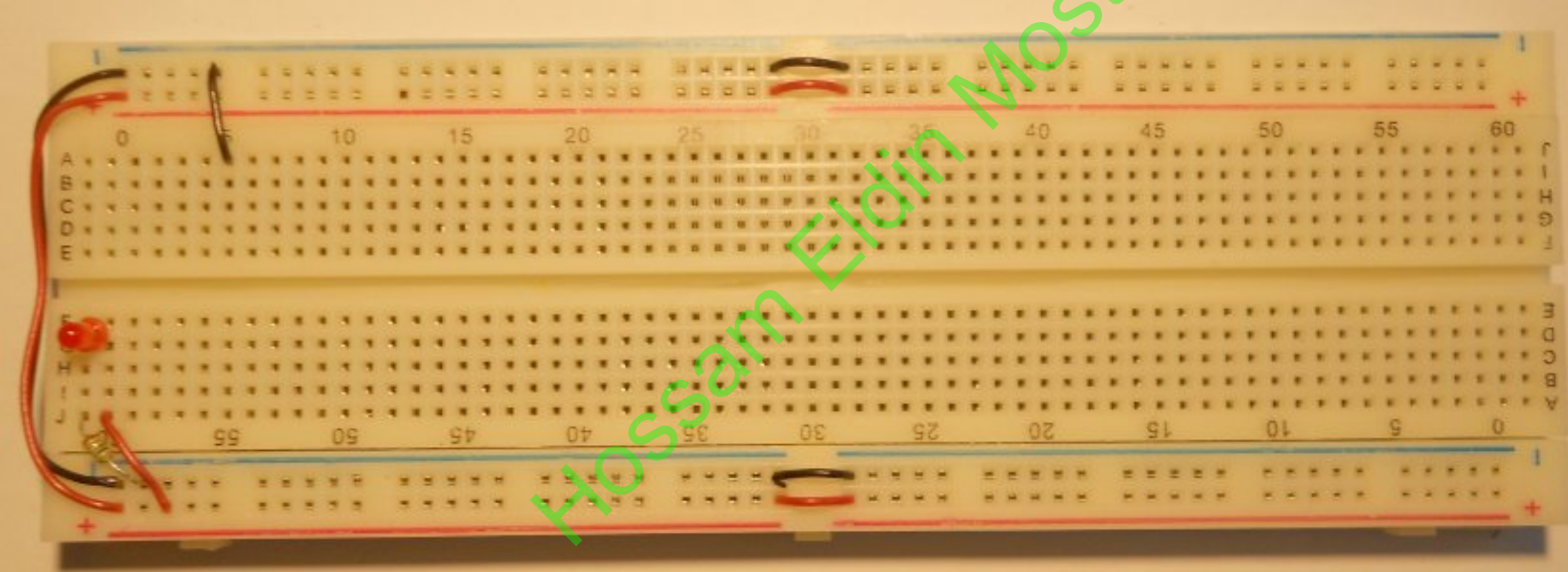


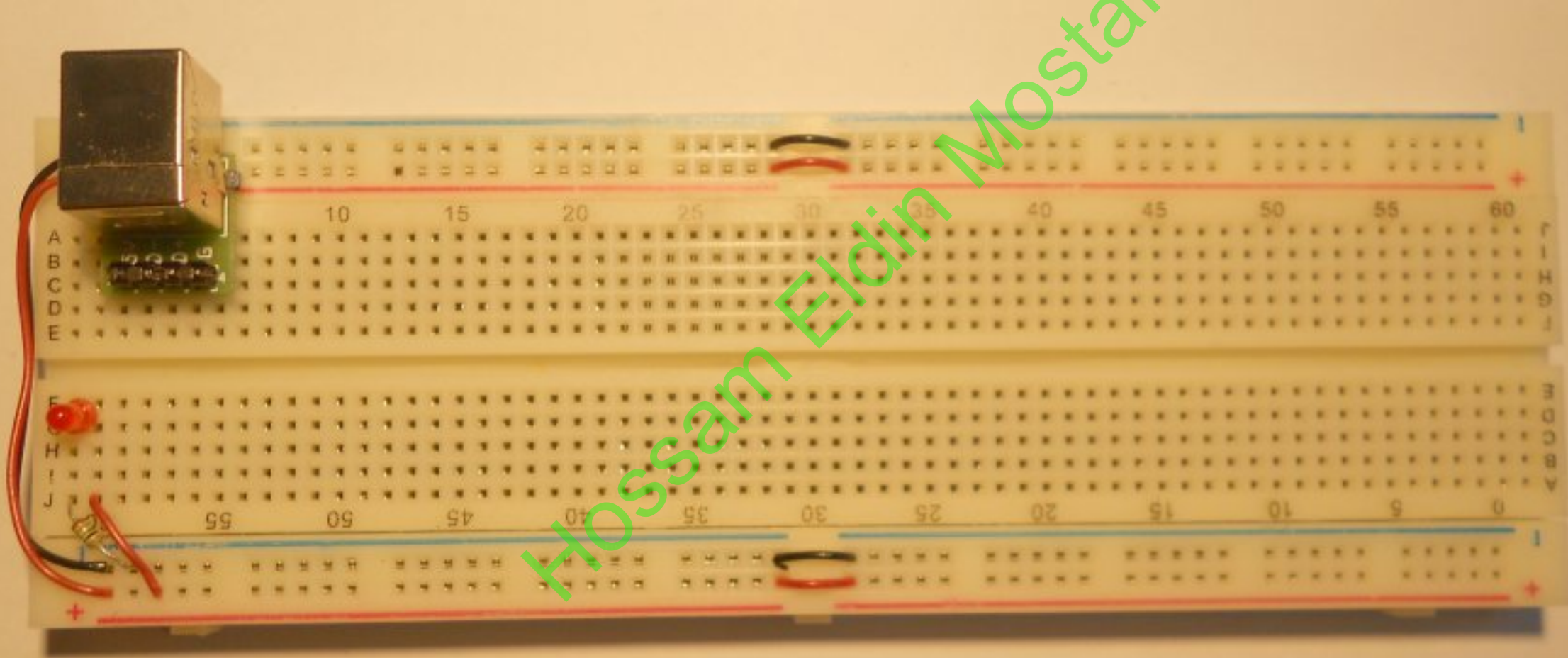


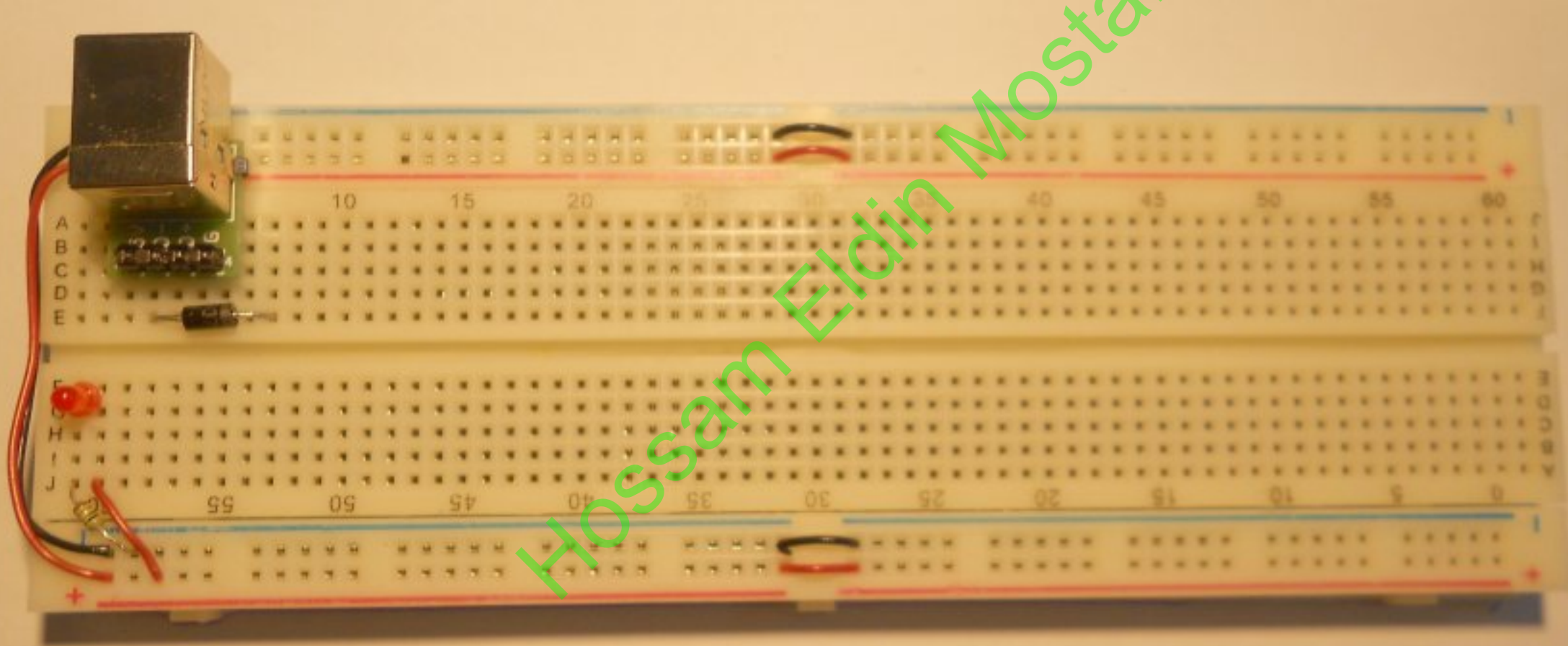


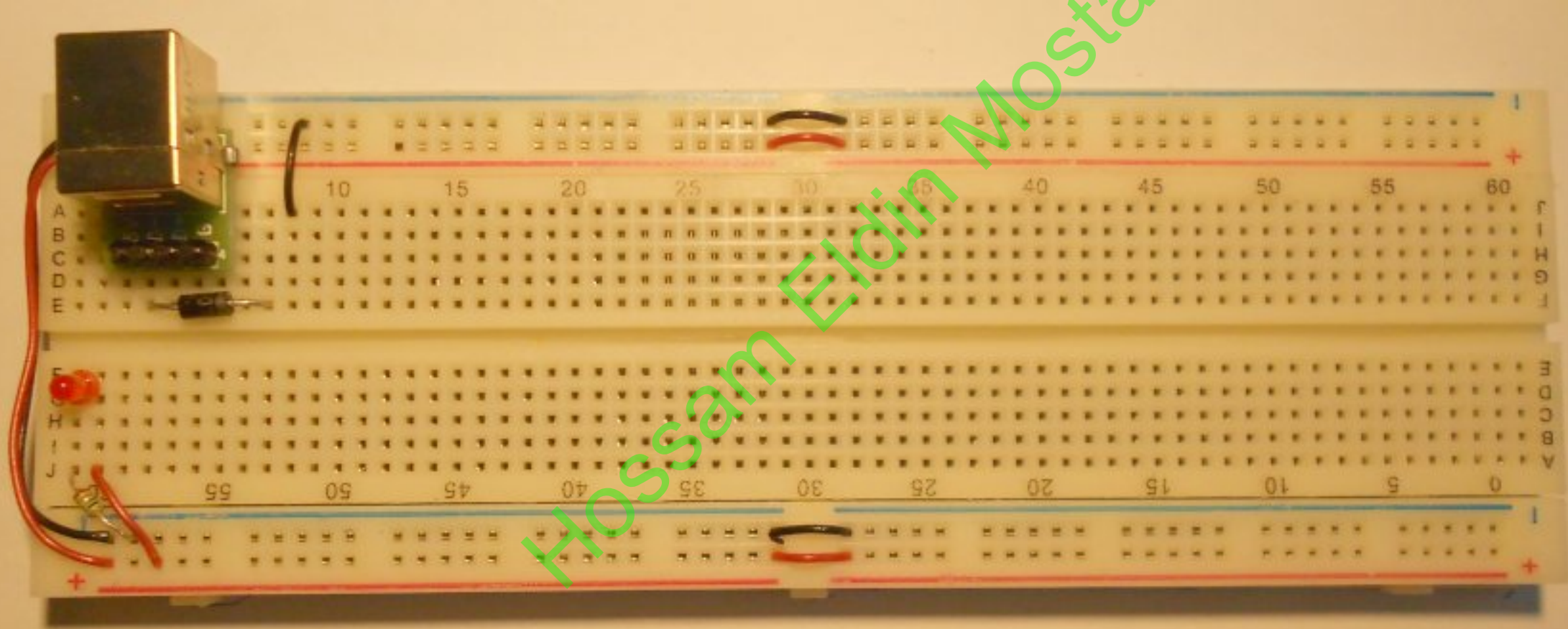


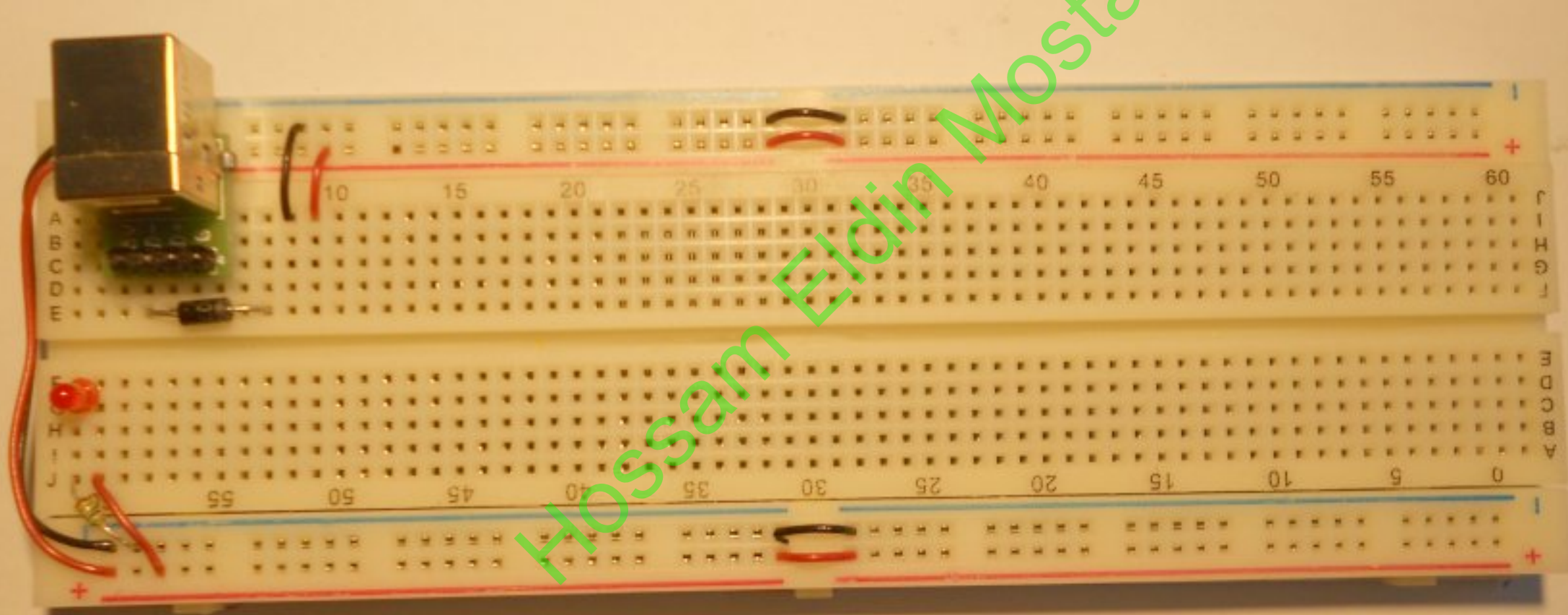


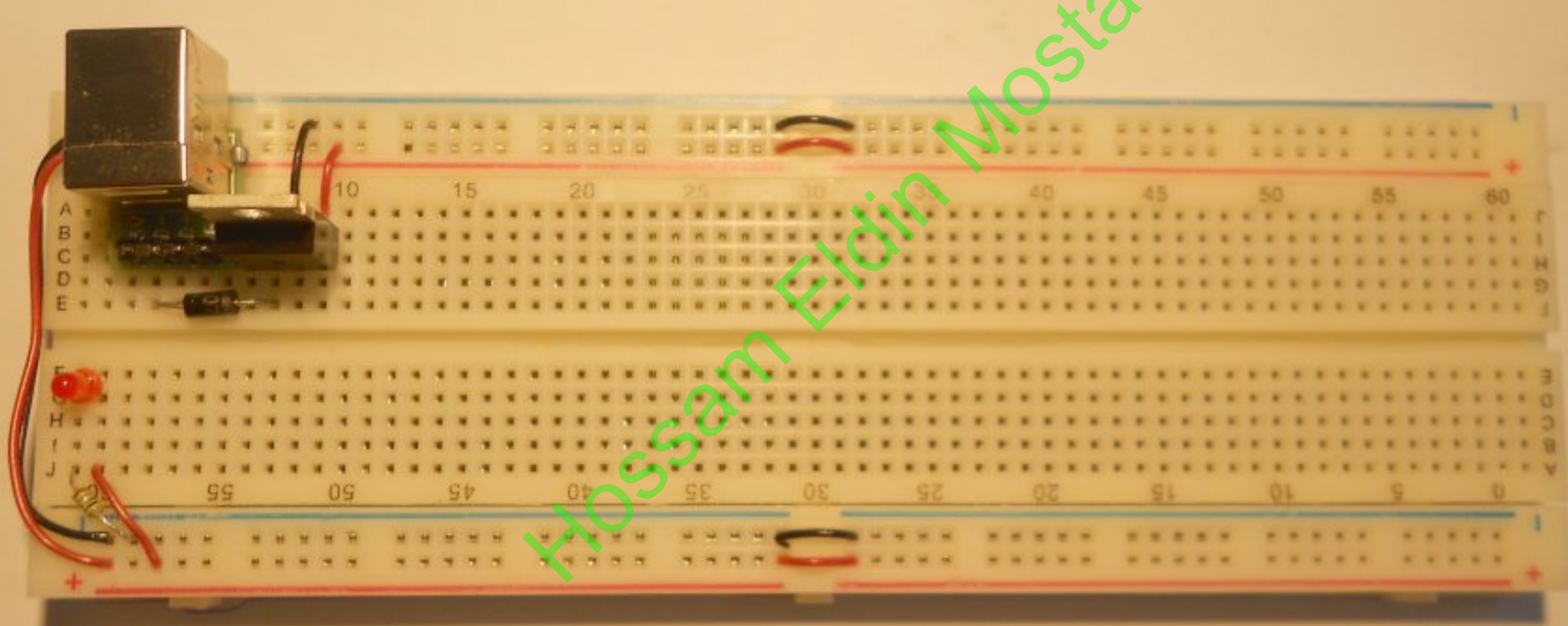


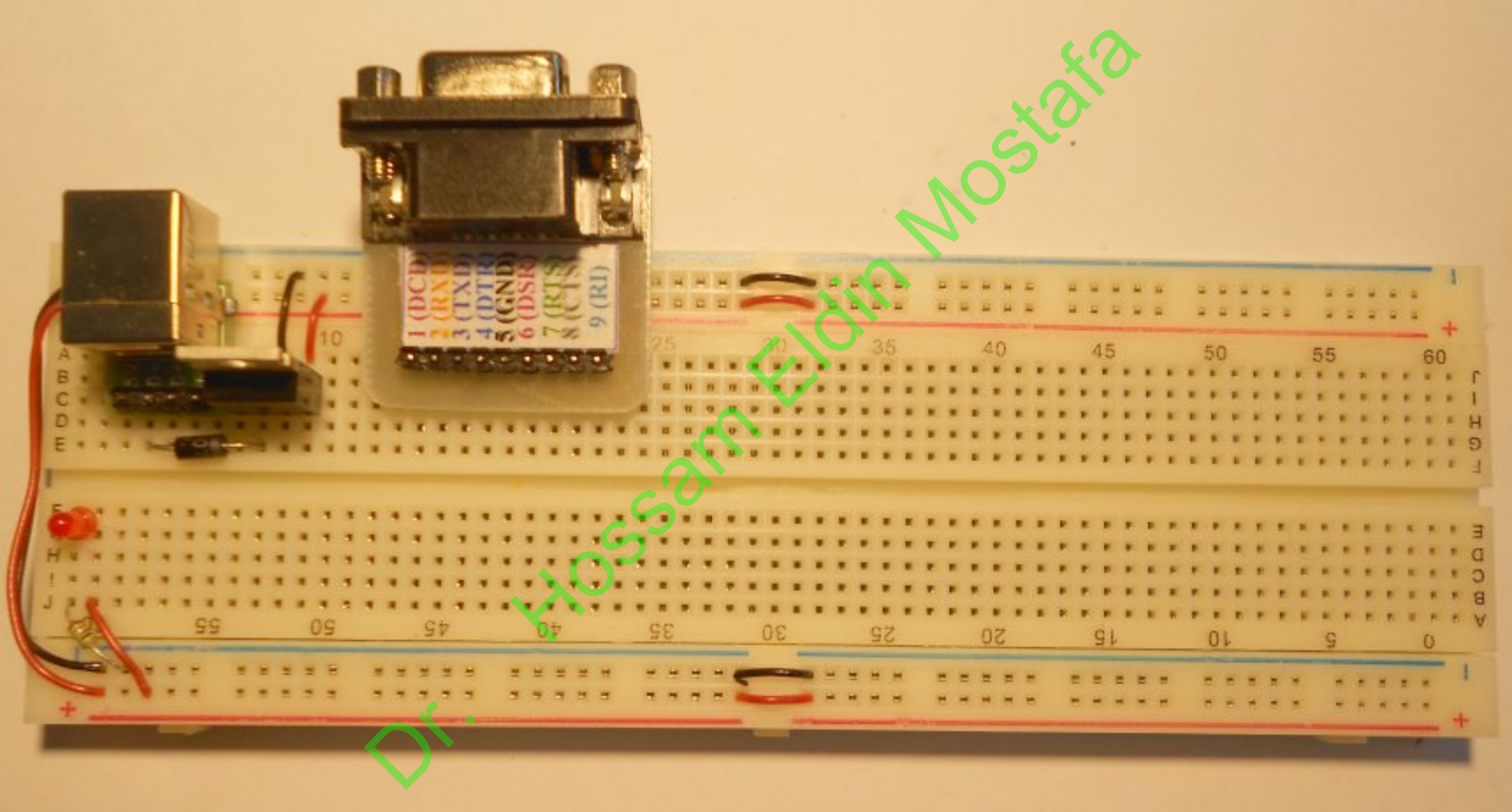


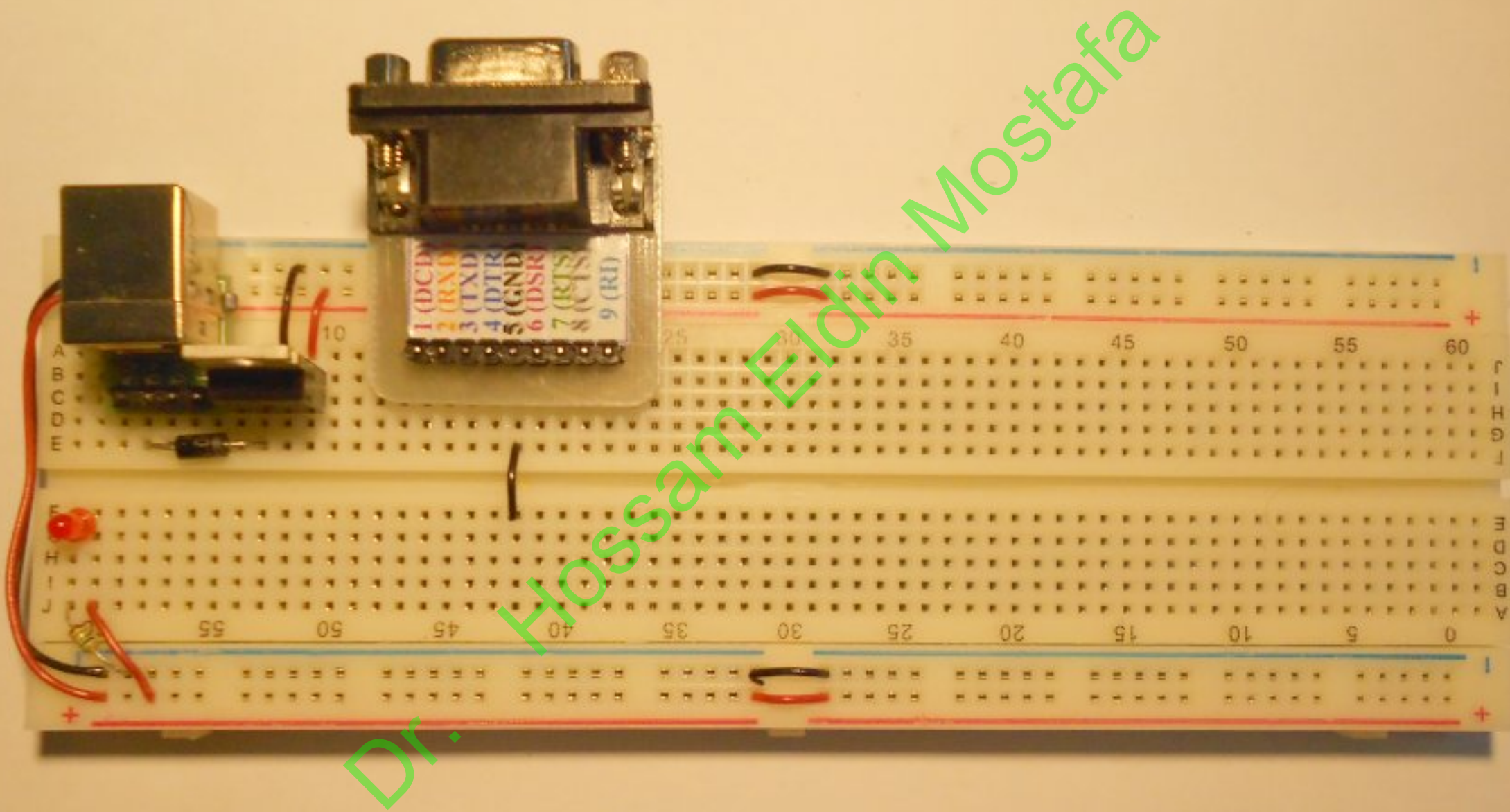


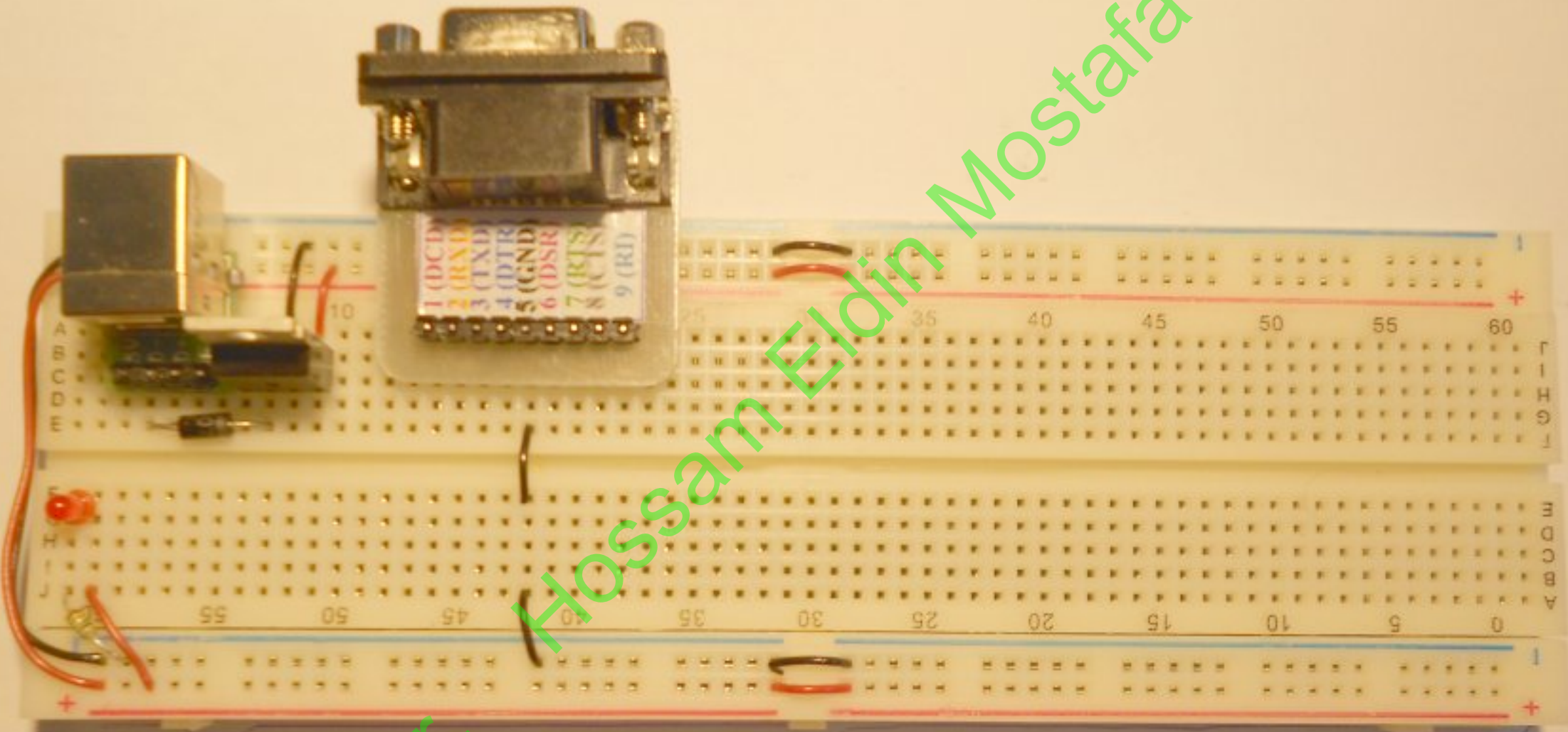


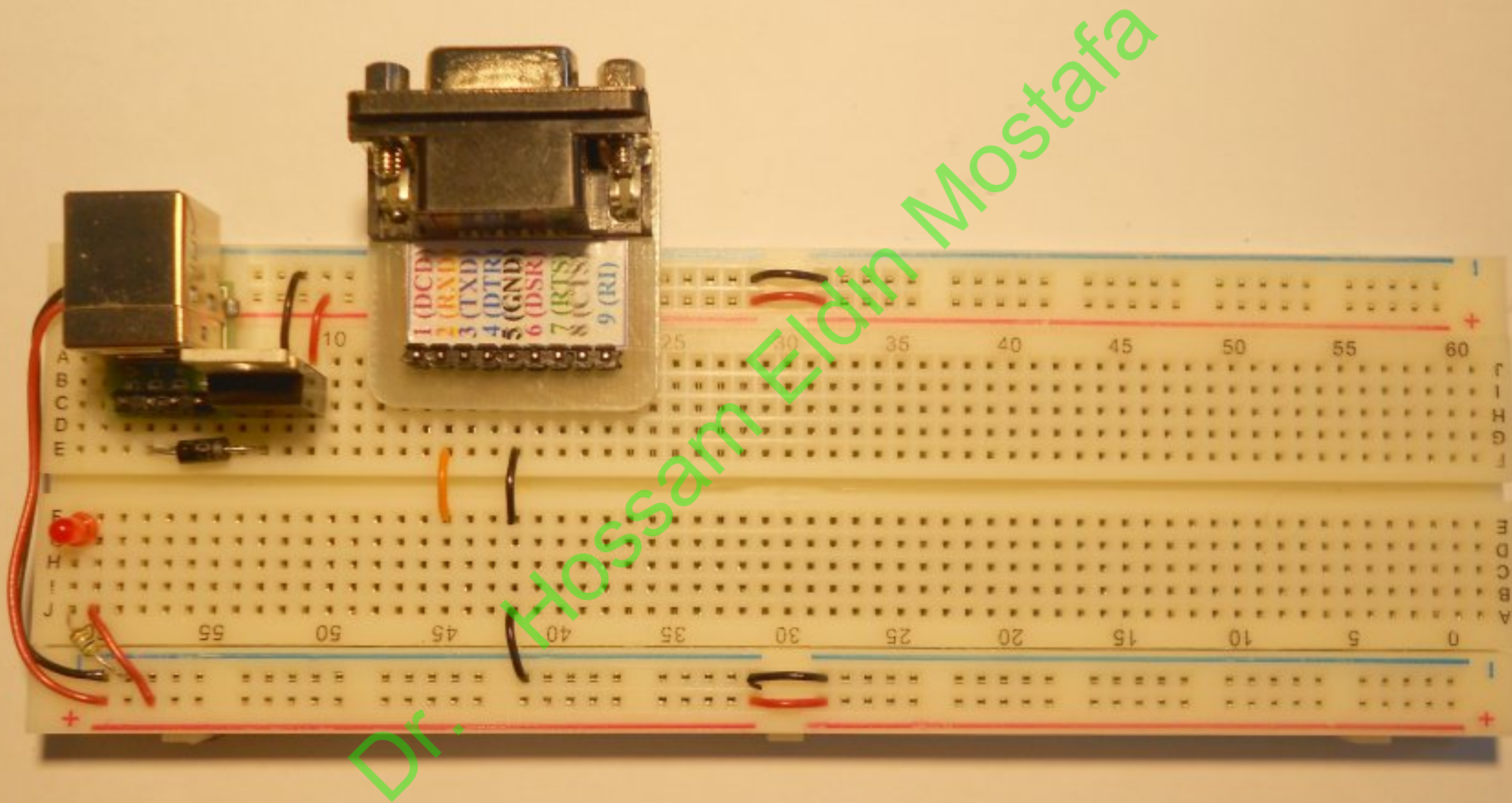


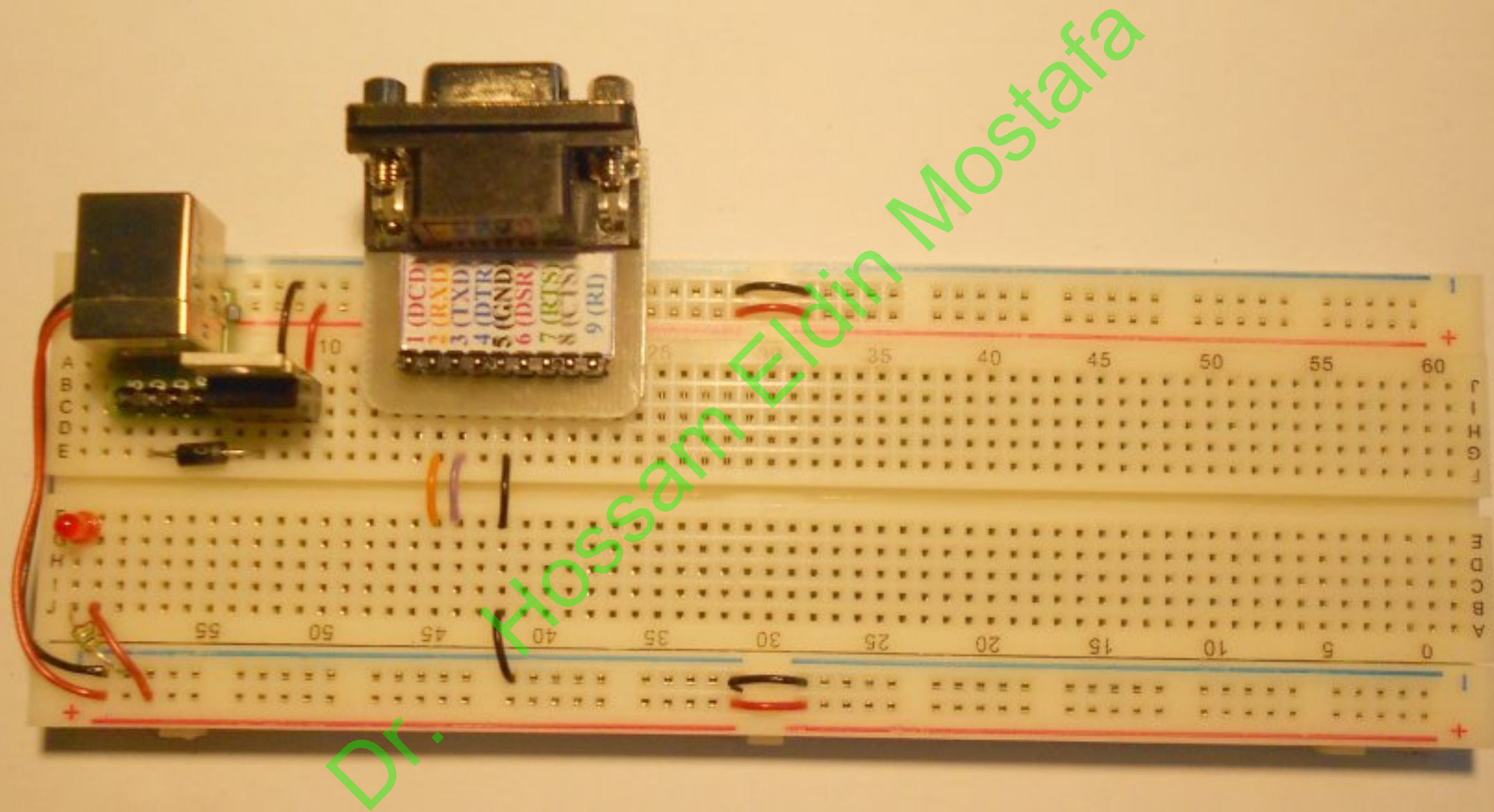


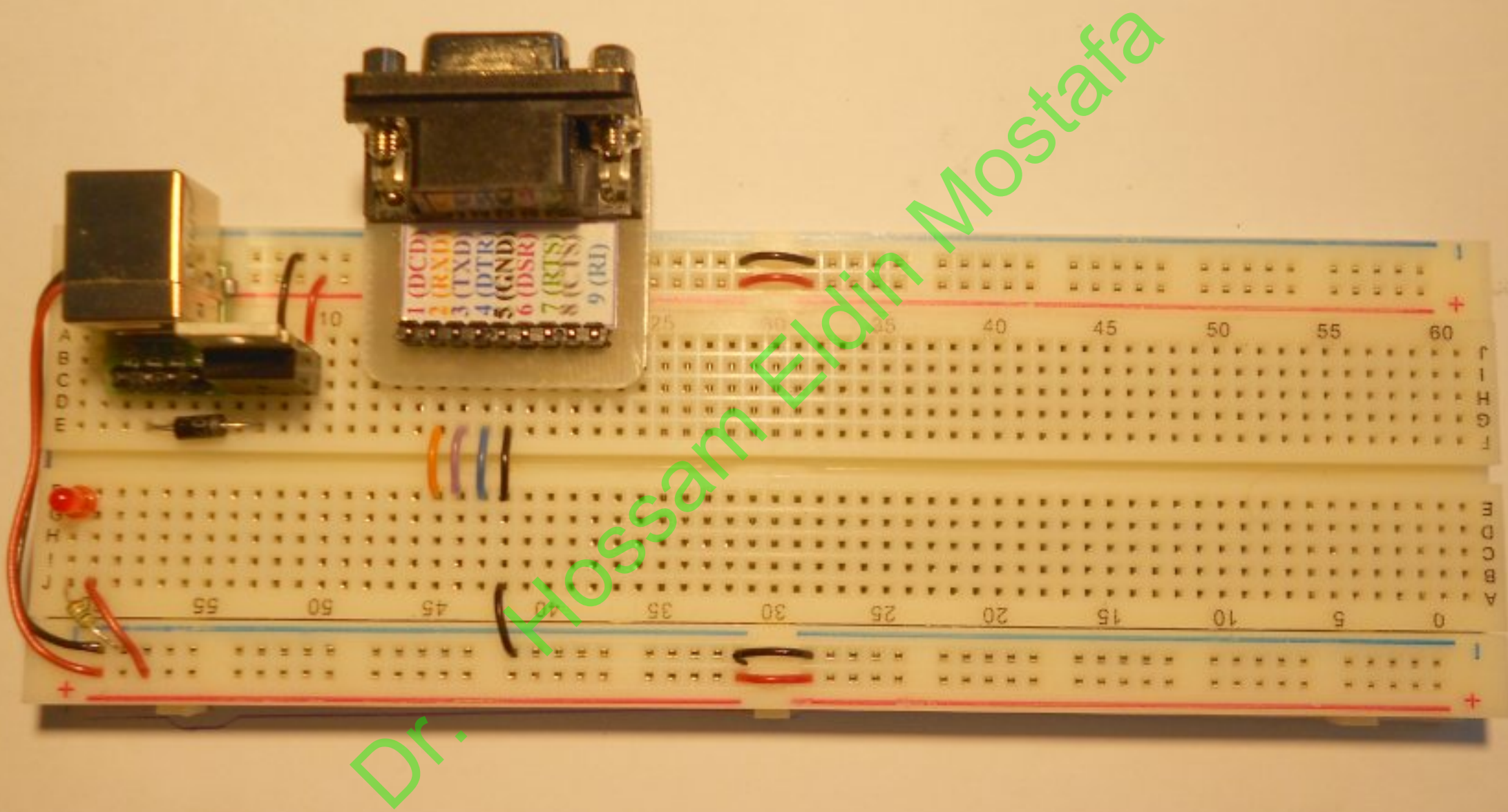


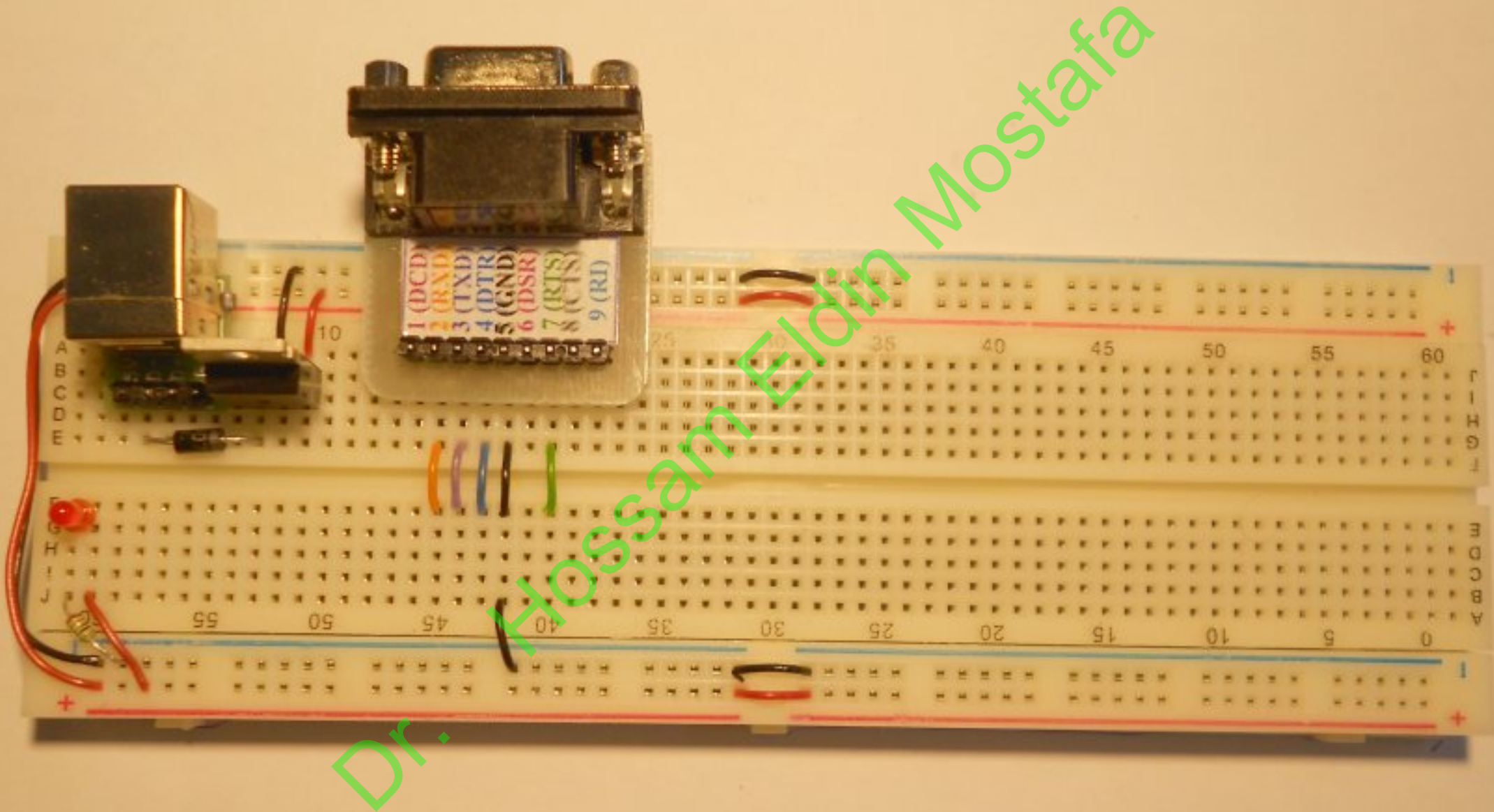


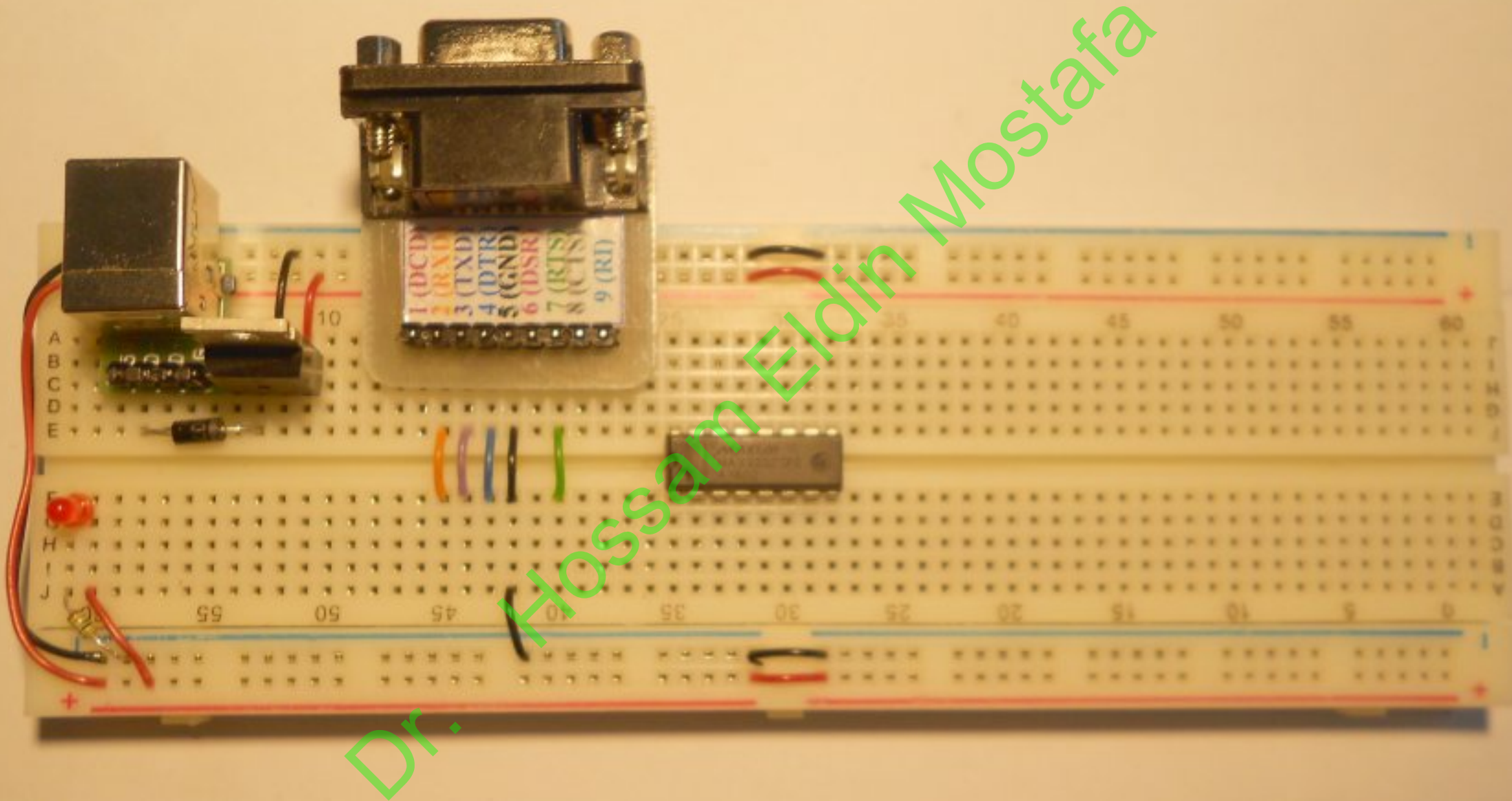


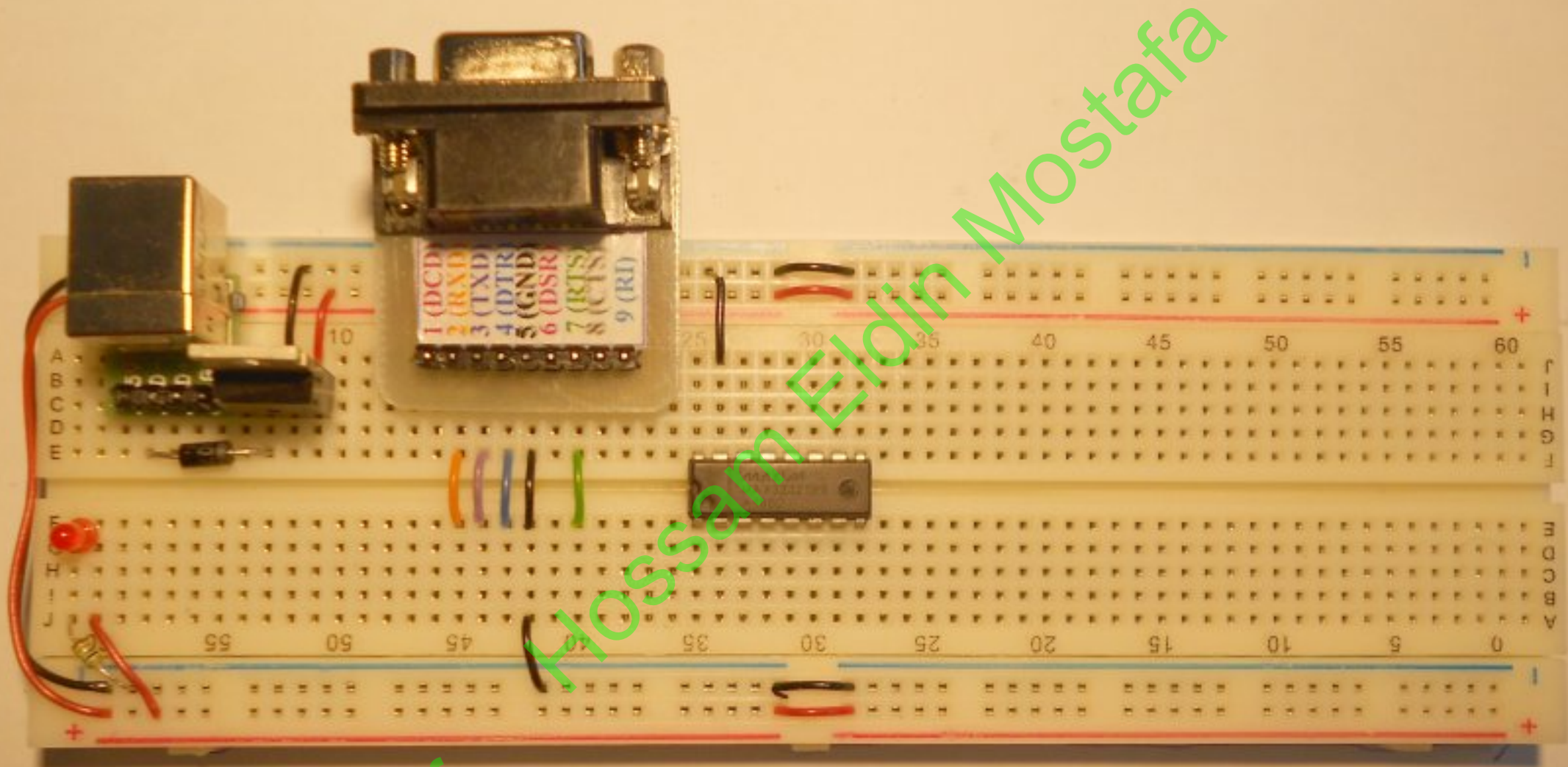


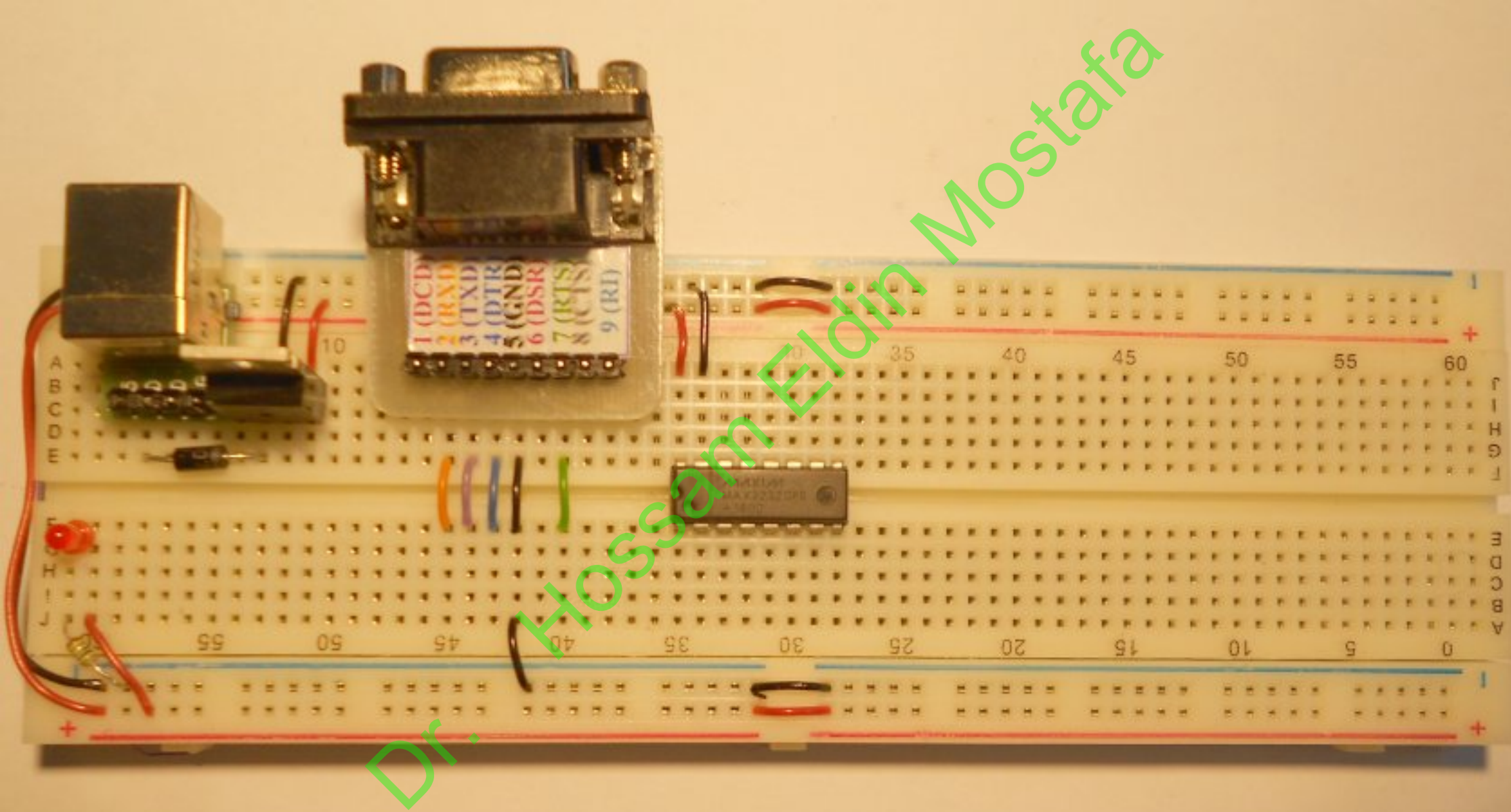


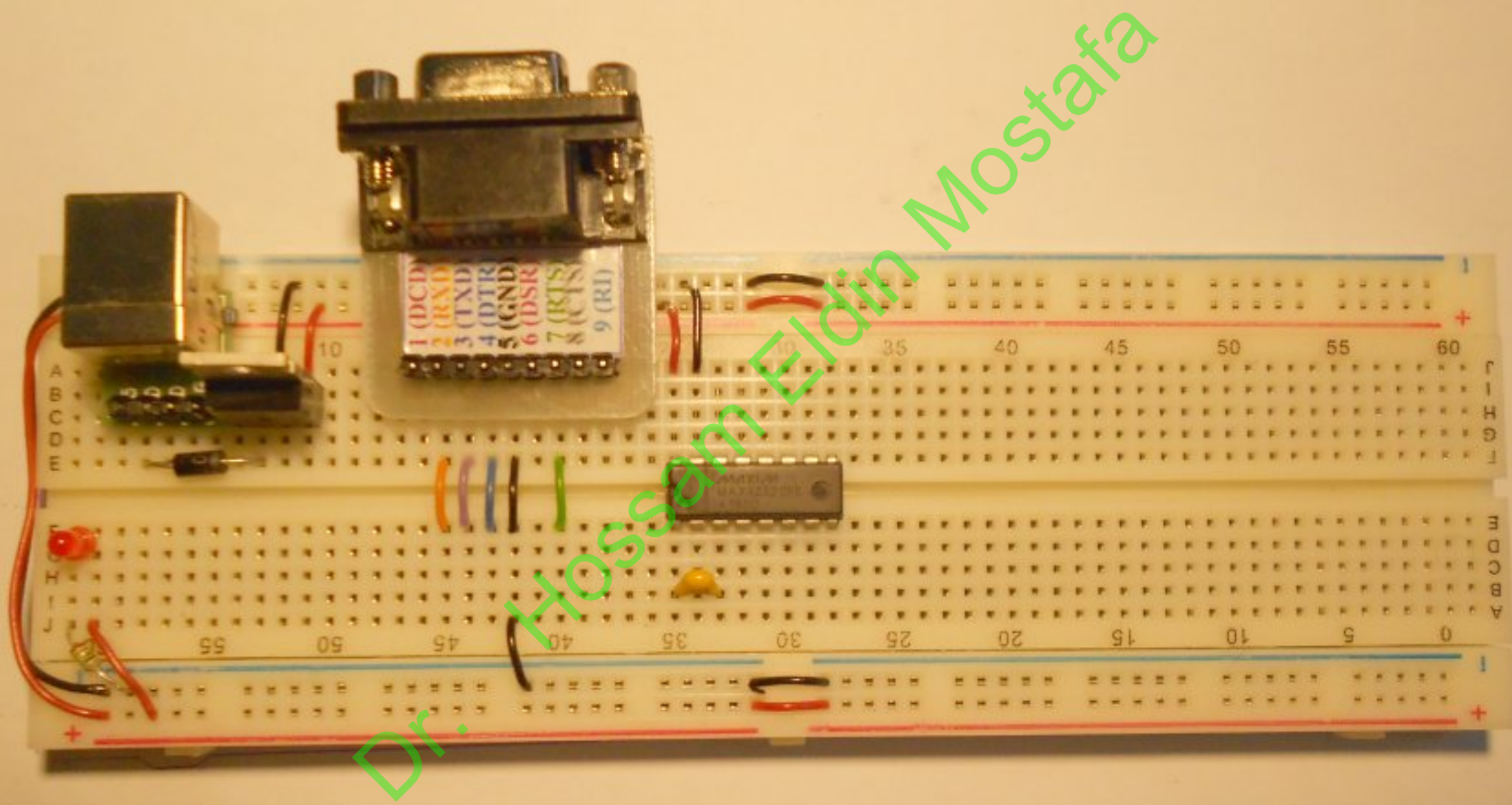


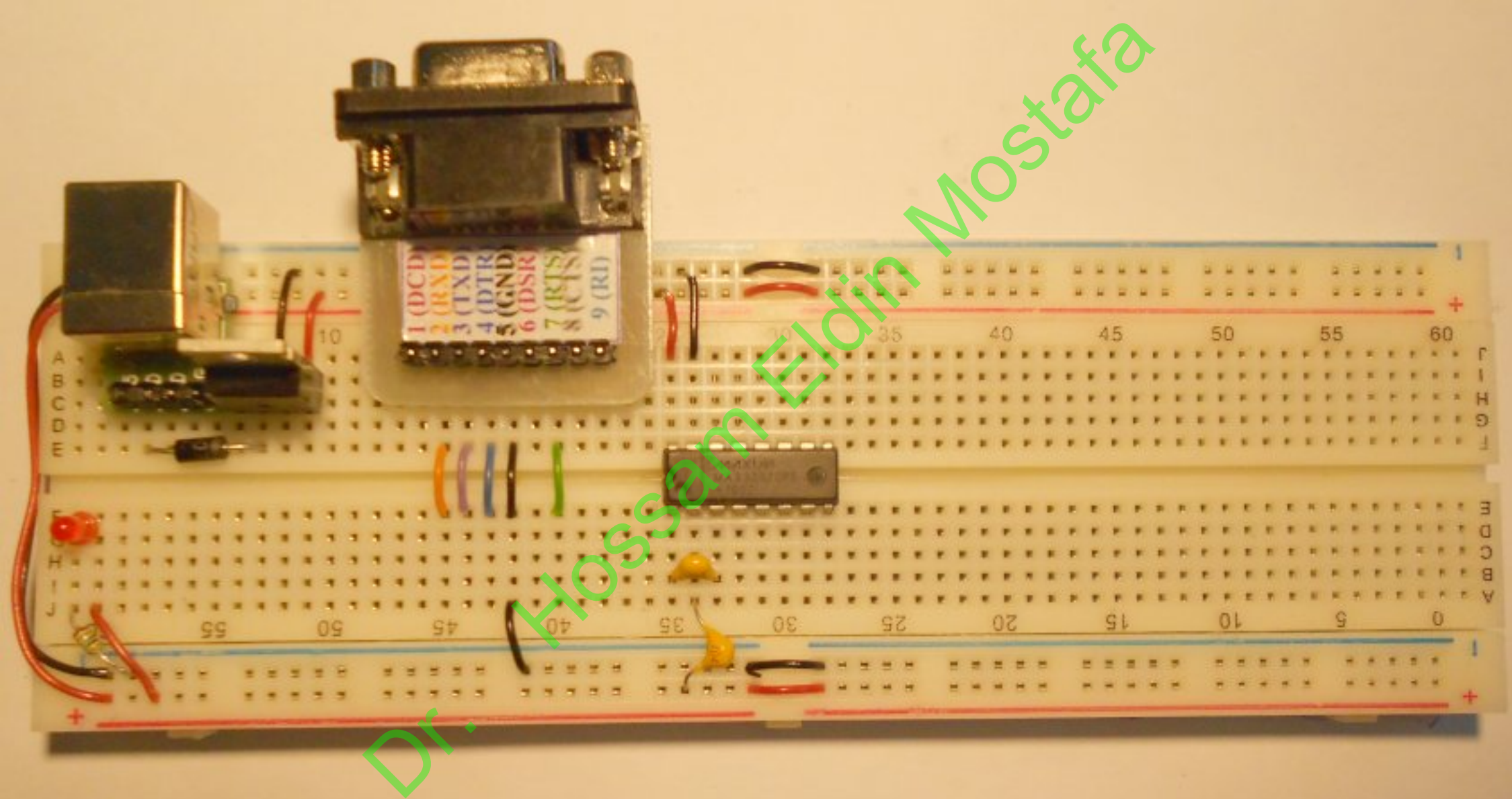


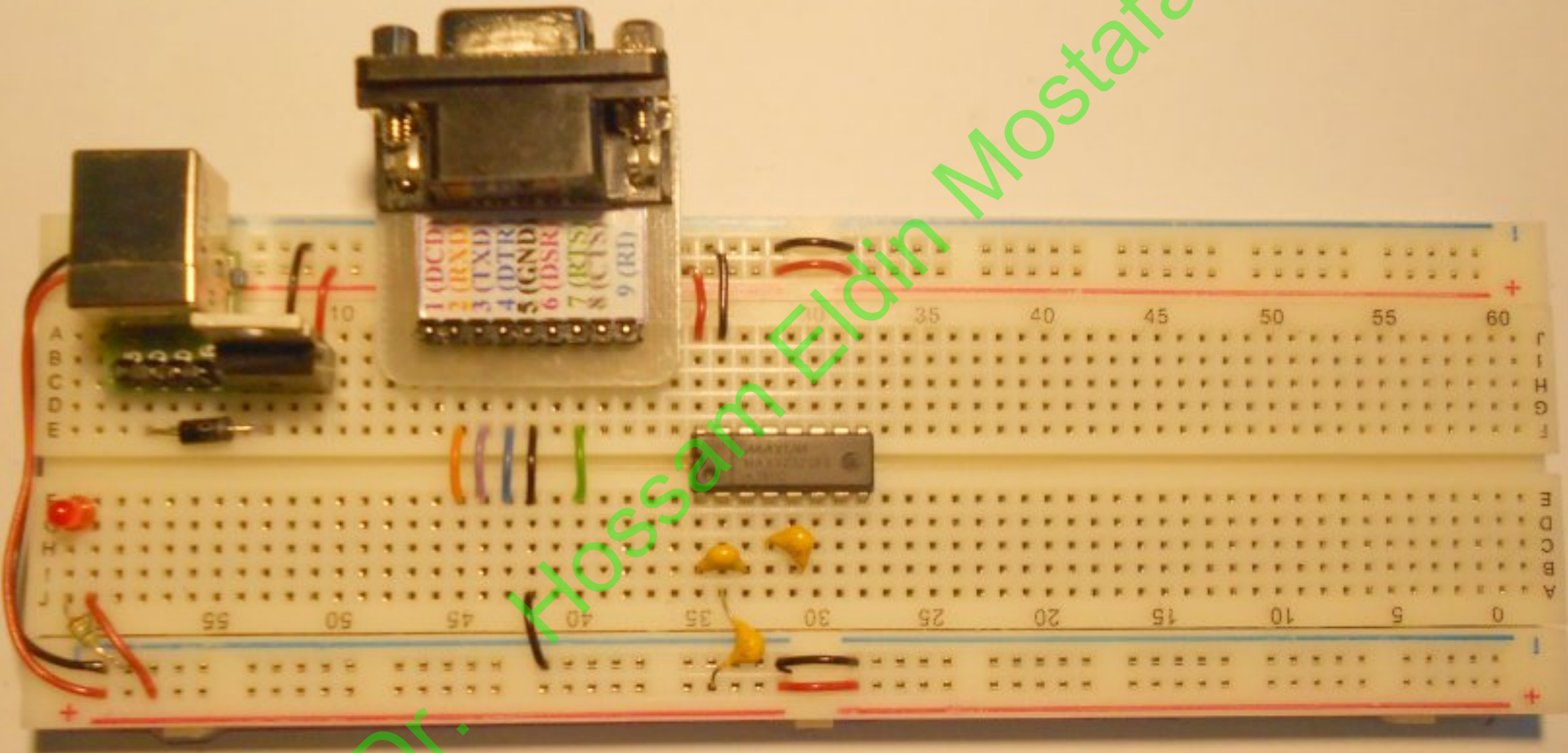






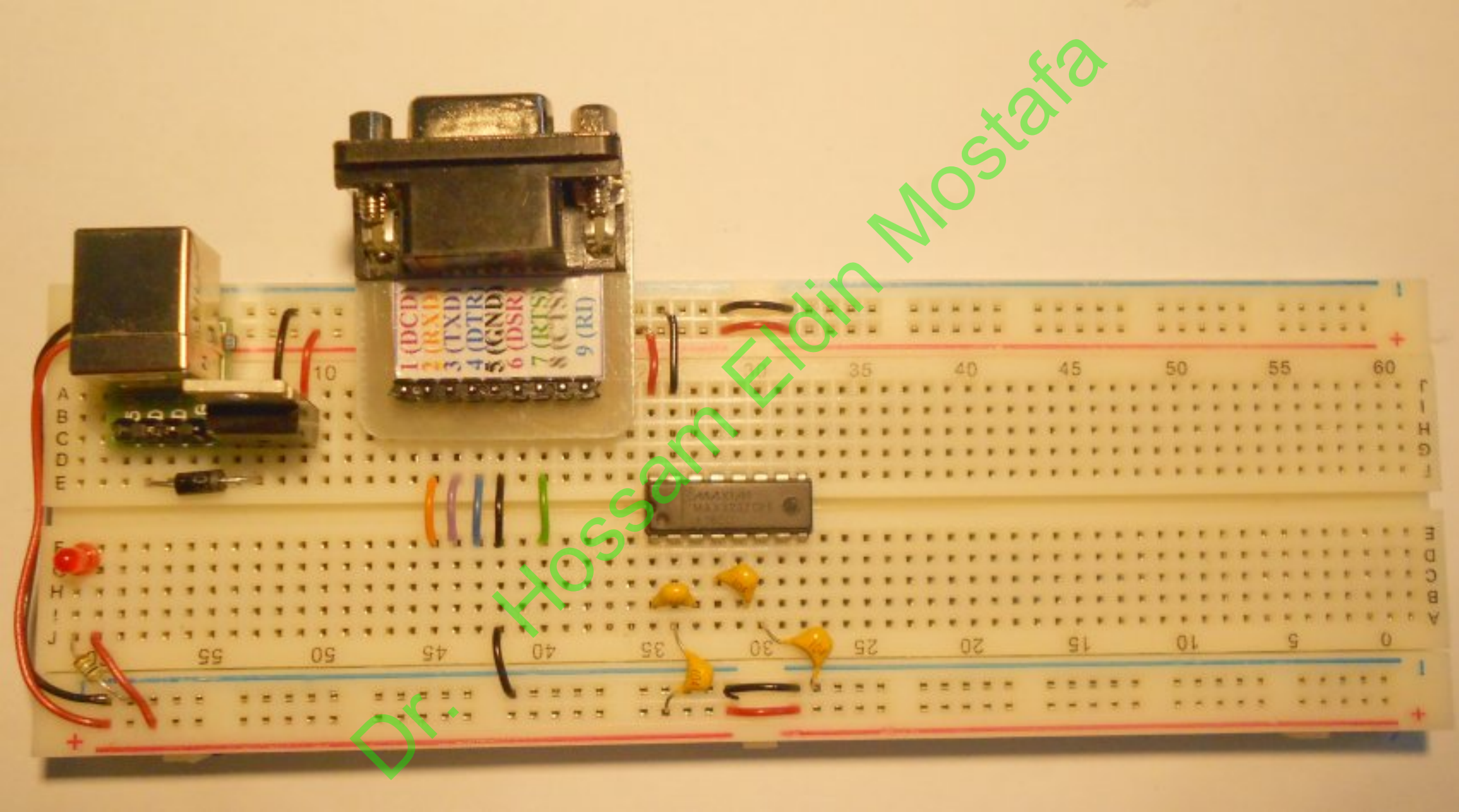


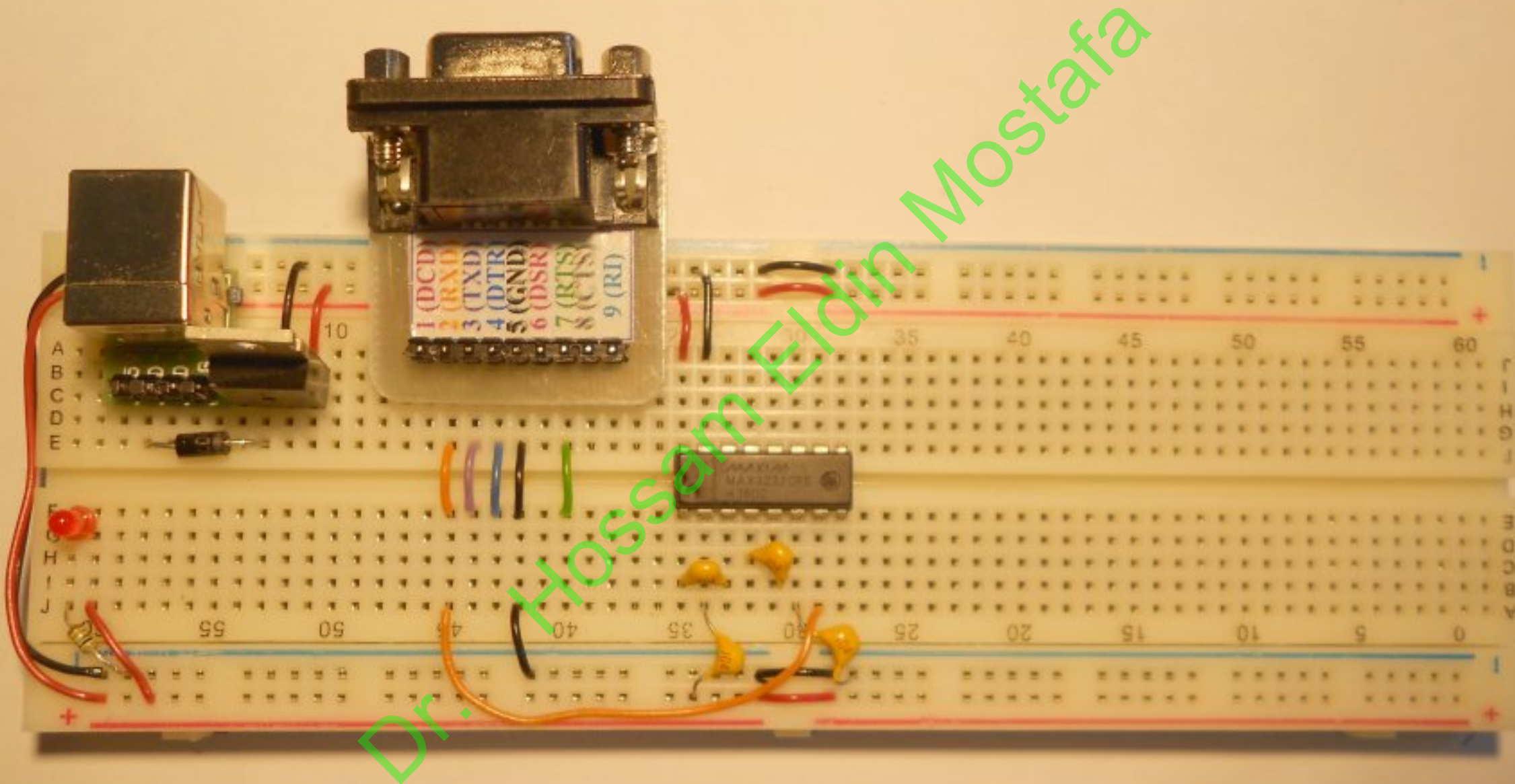


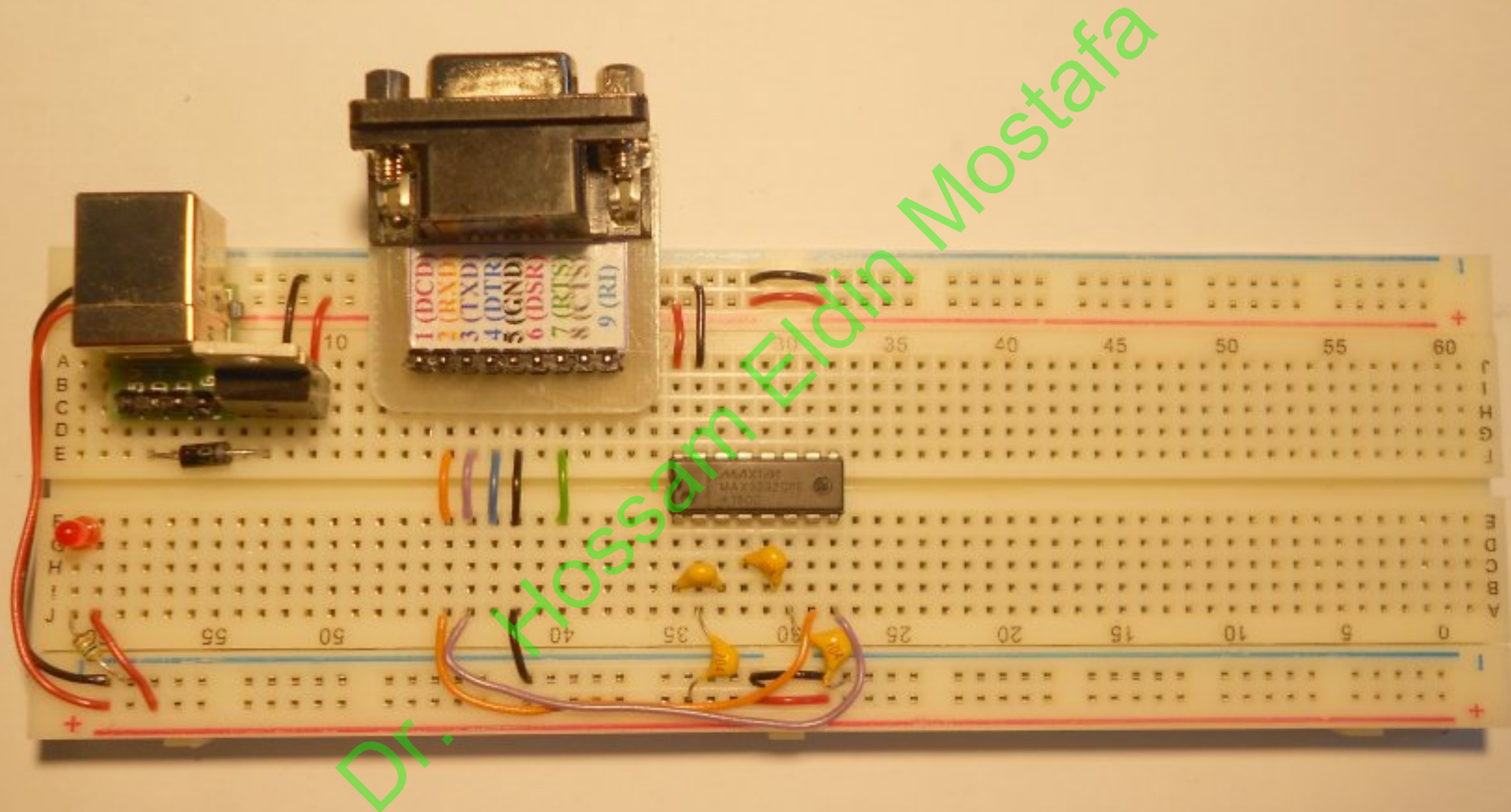


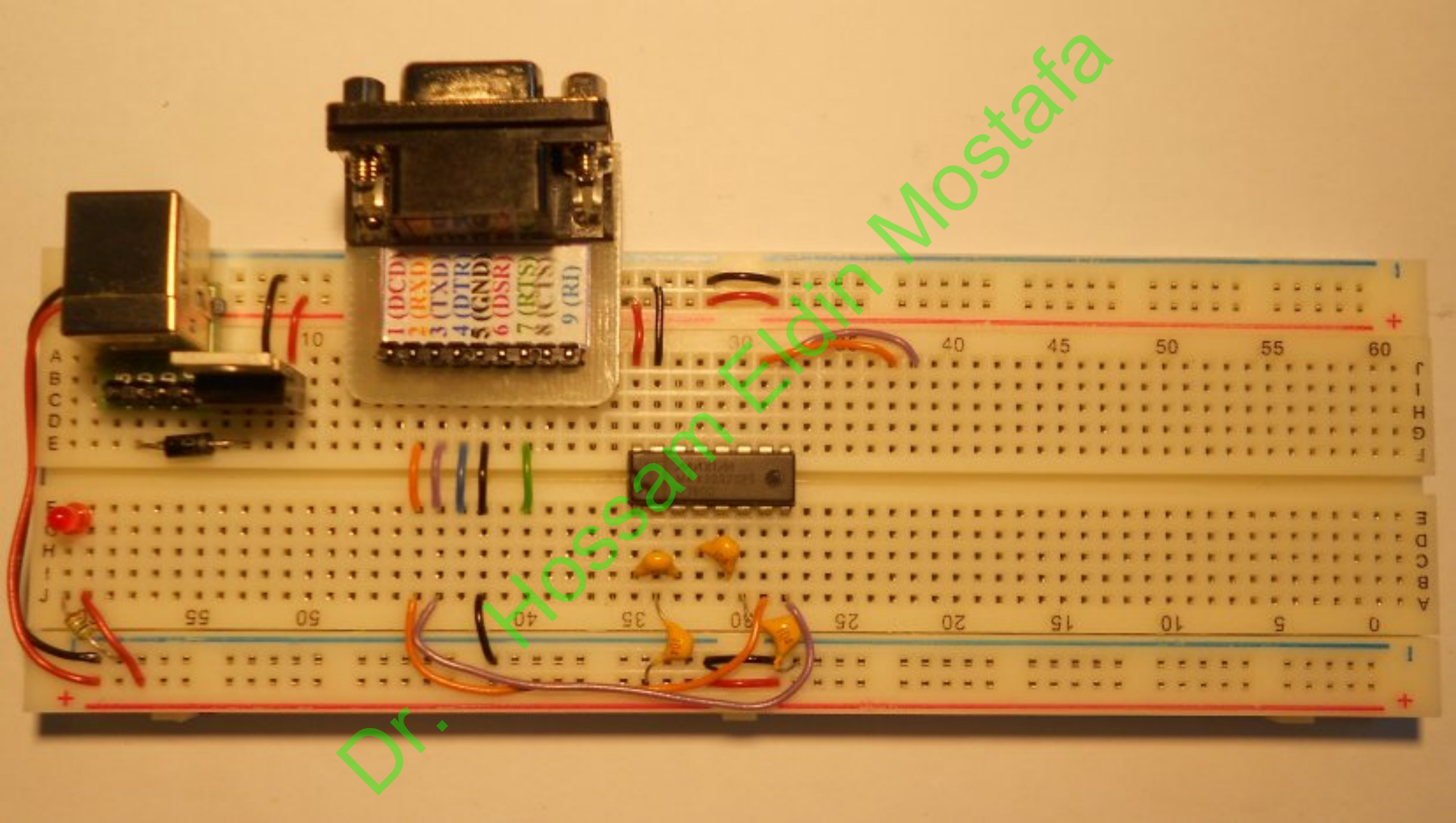
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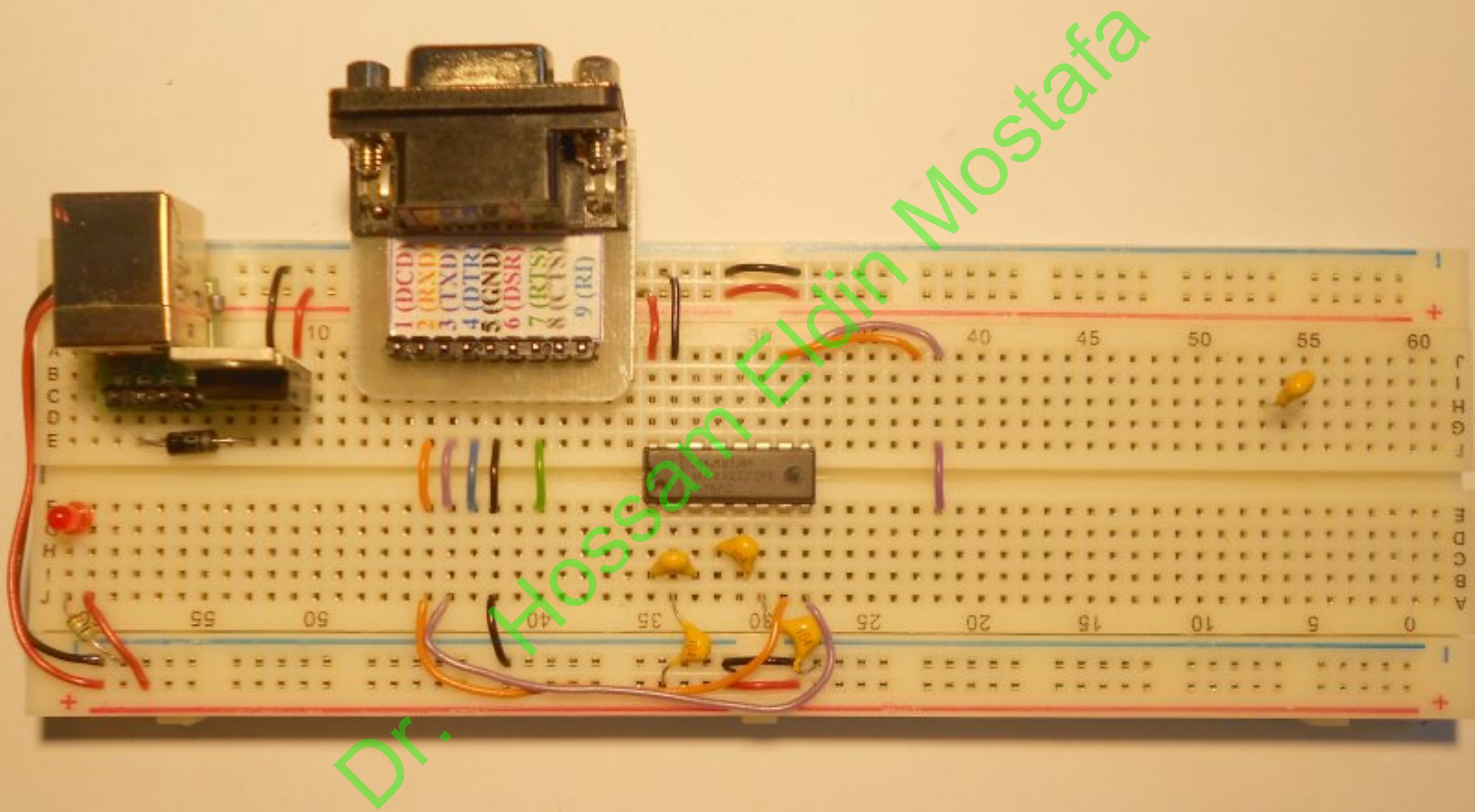
Hossam Eldin Mostafa

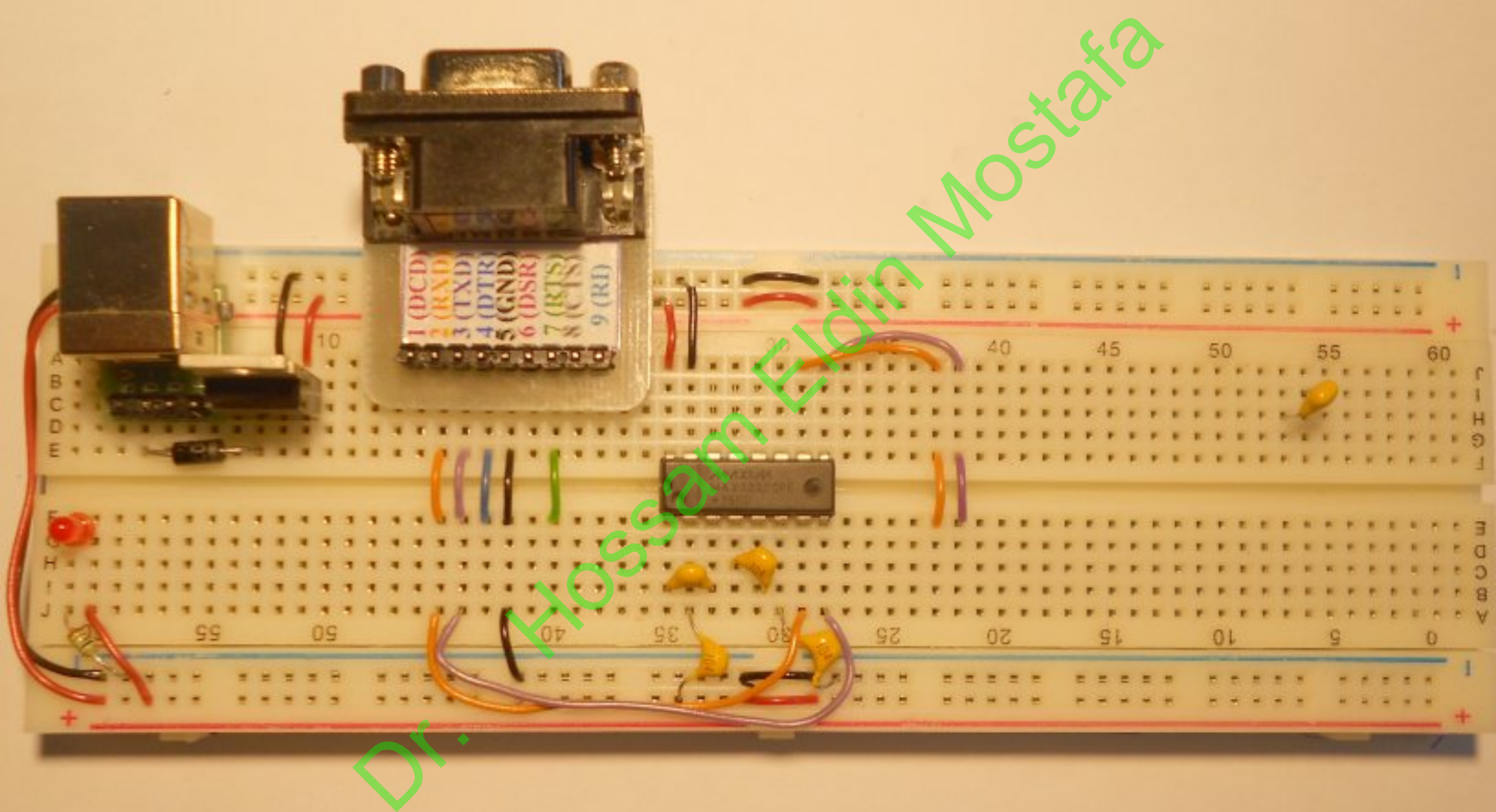


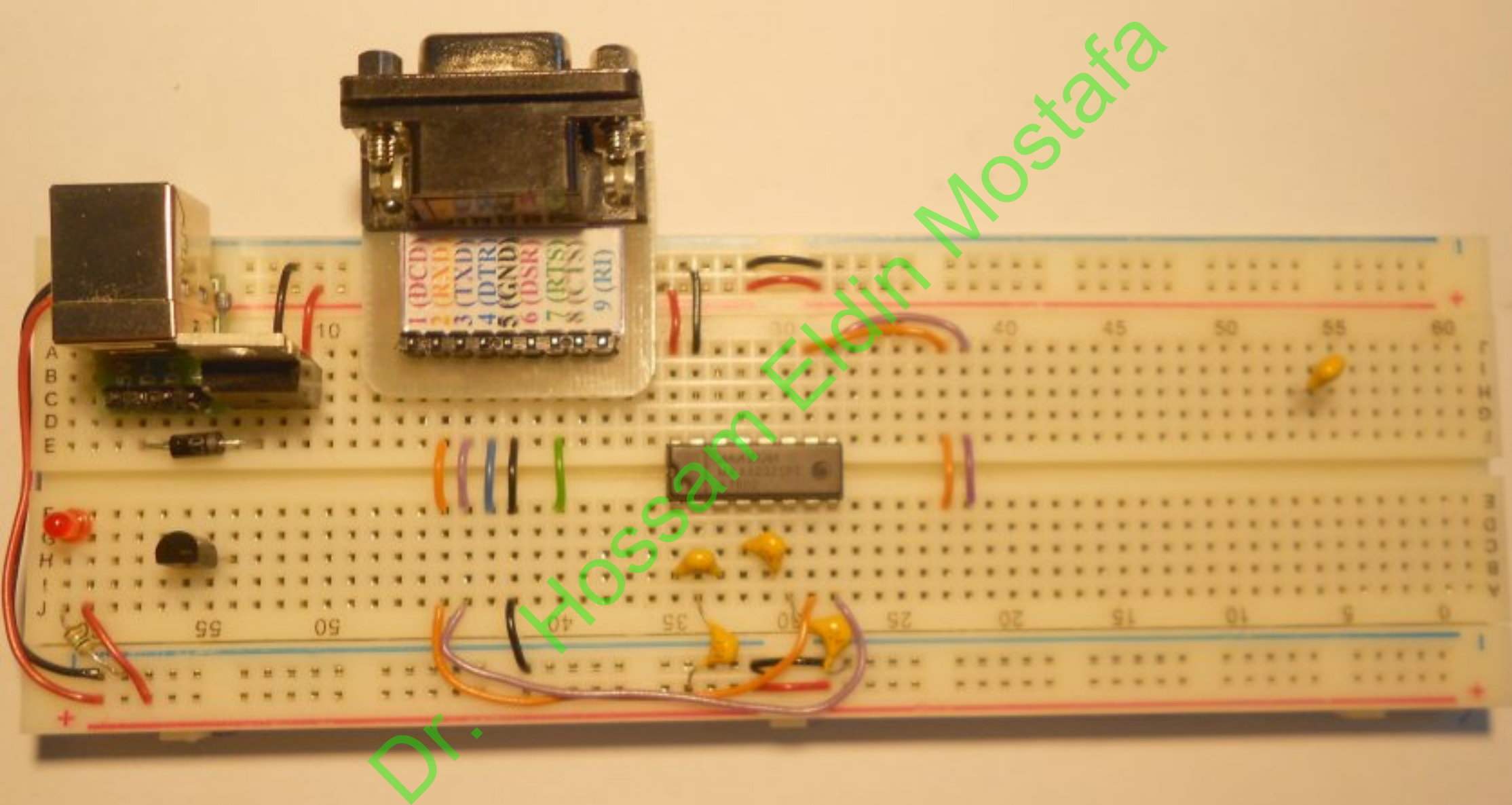


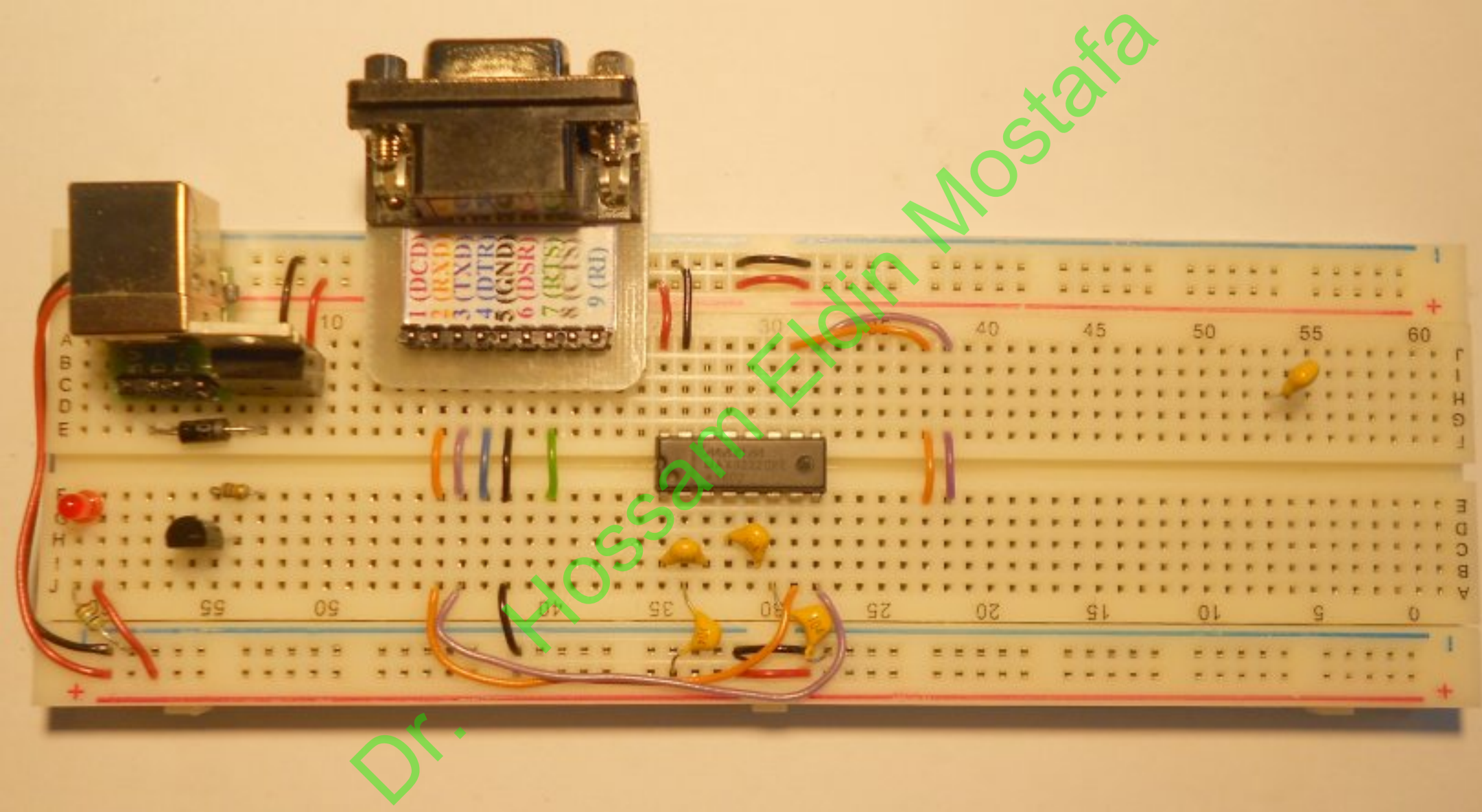


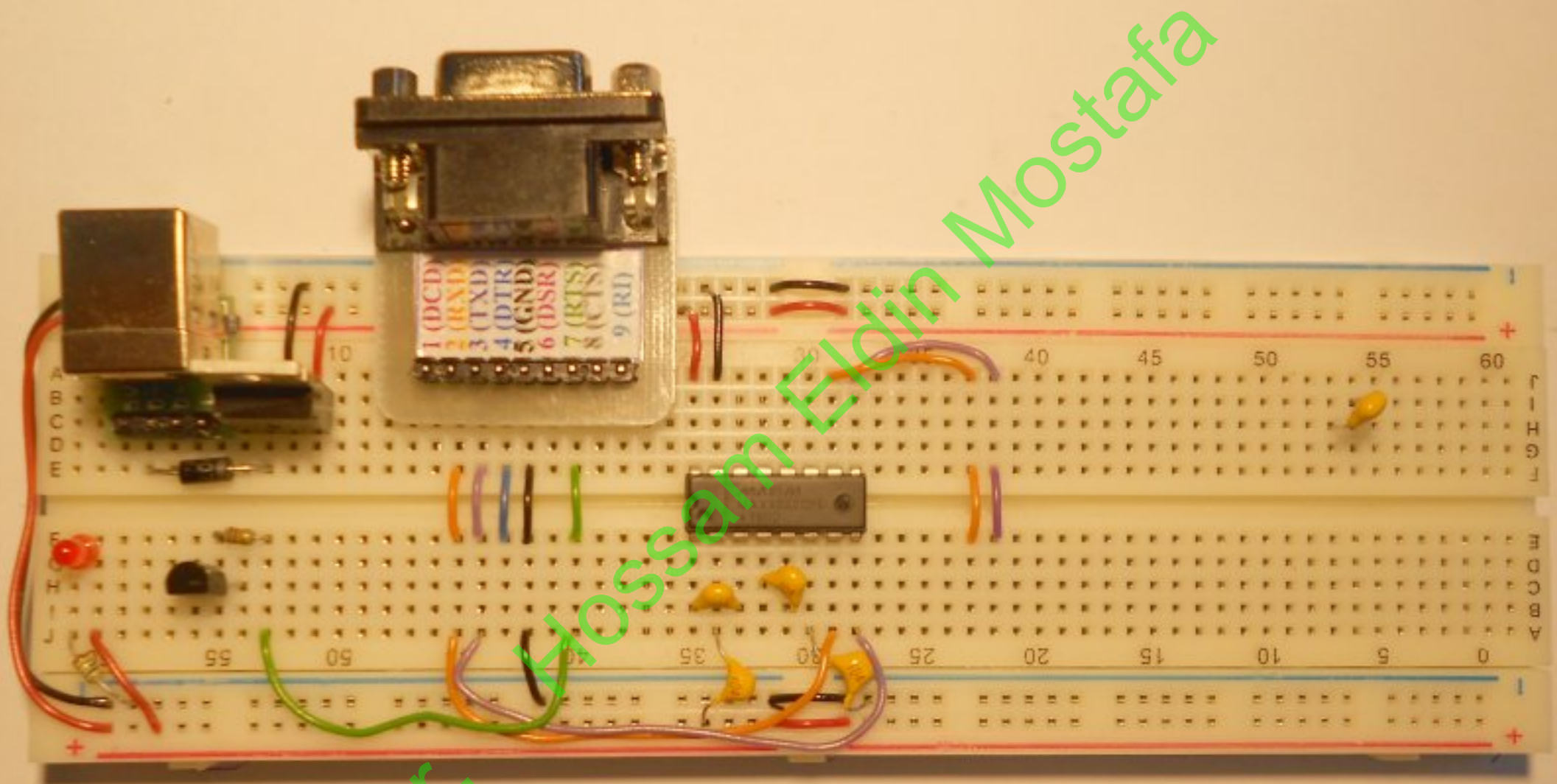






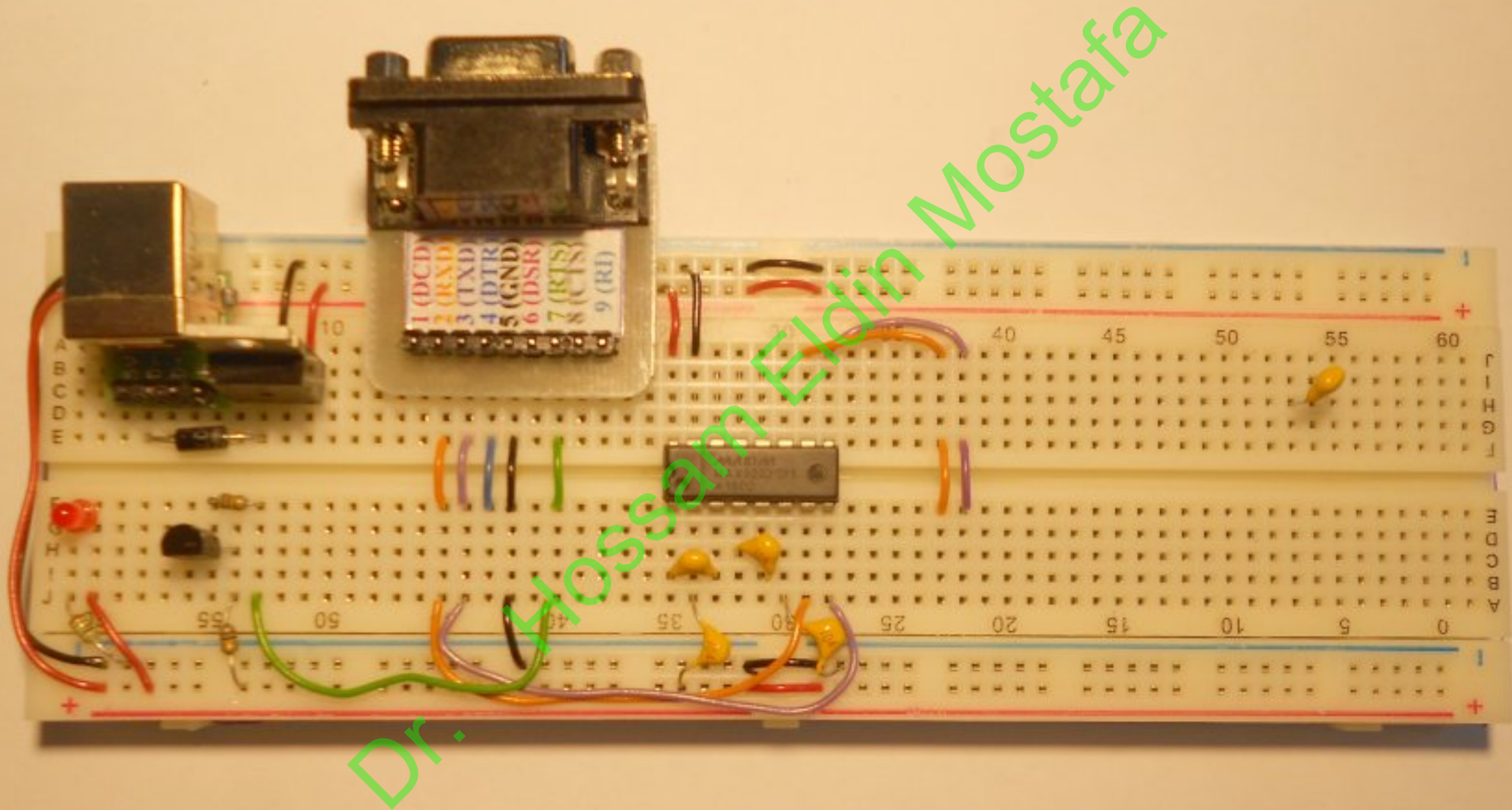


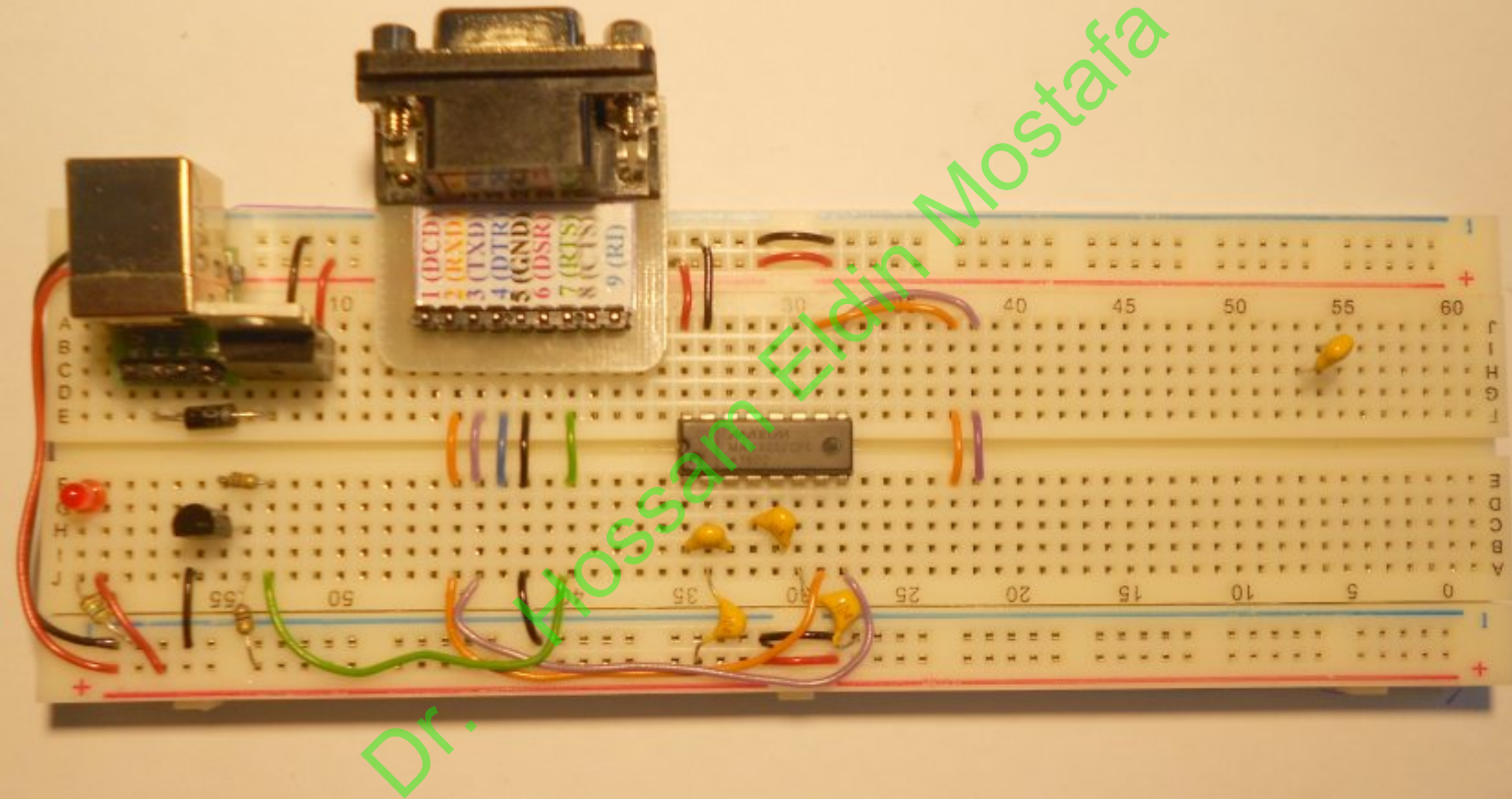


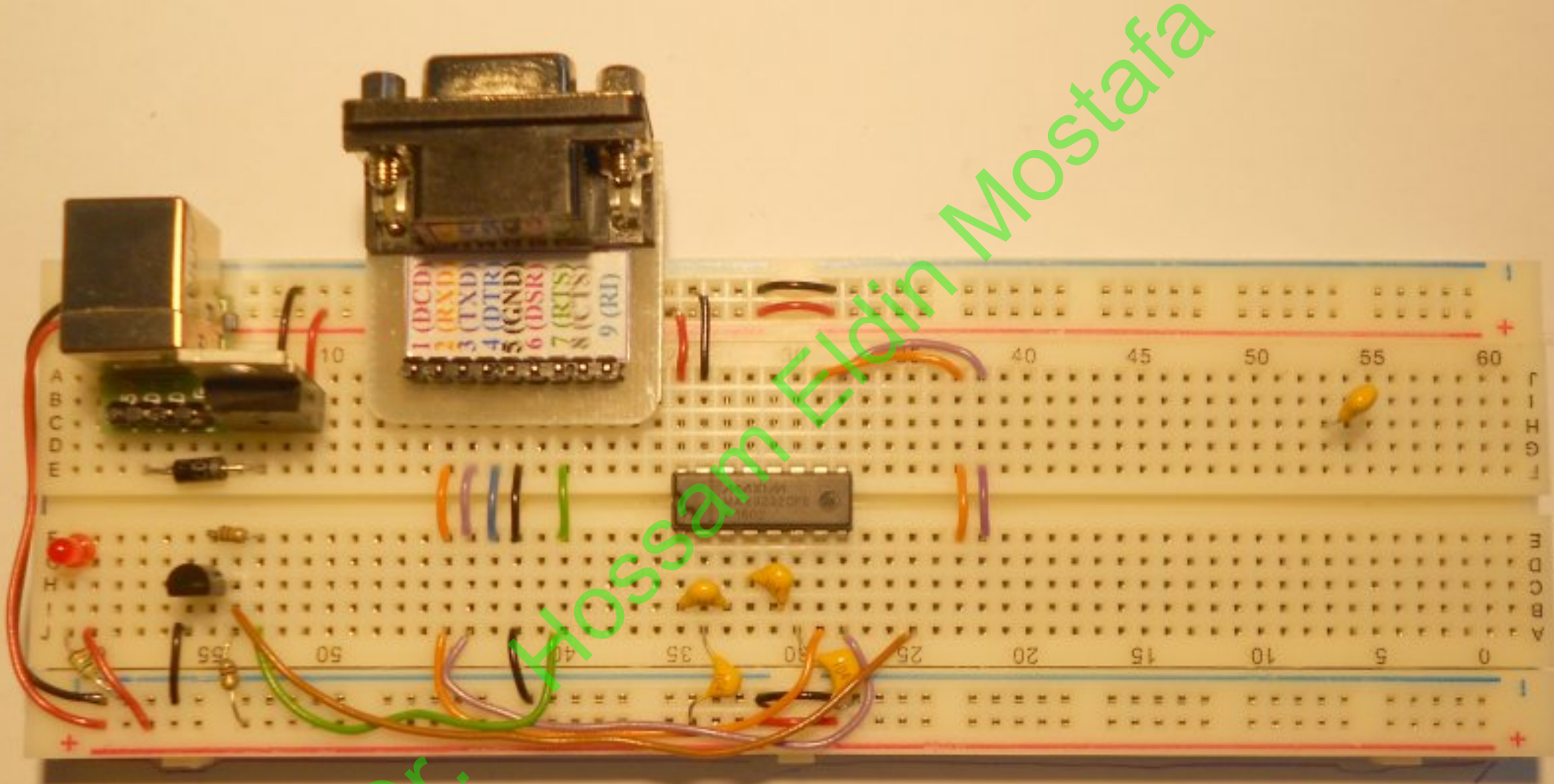


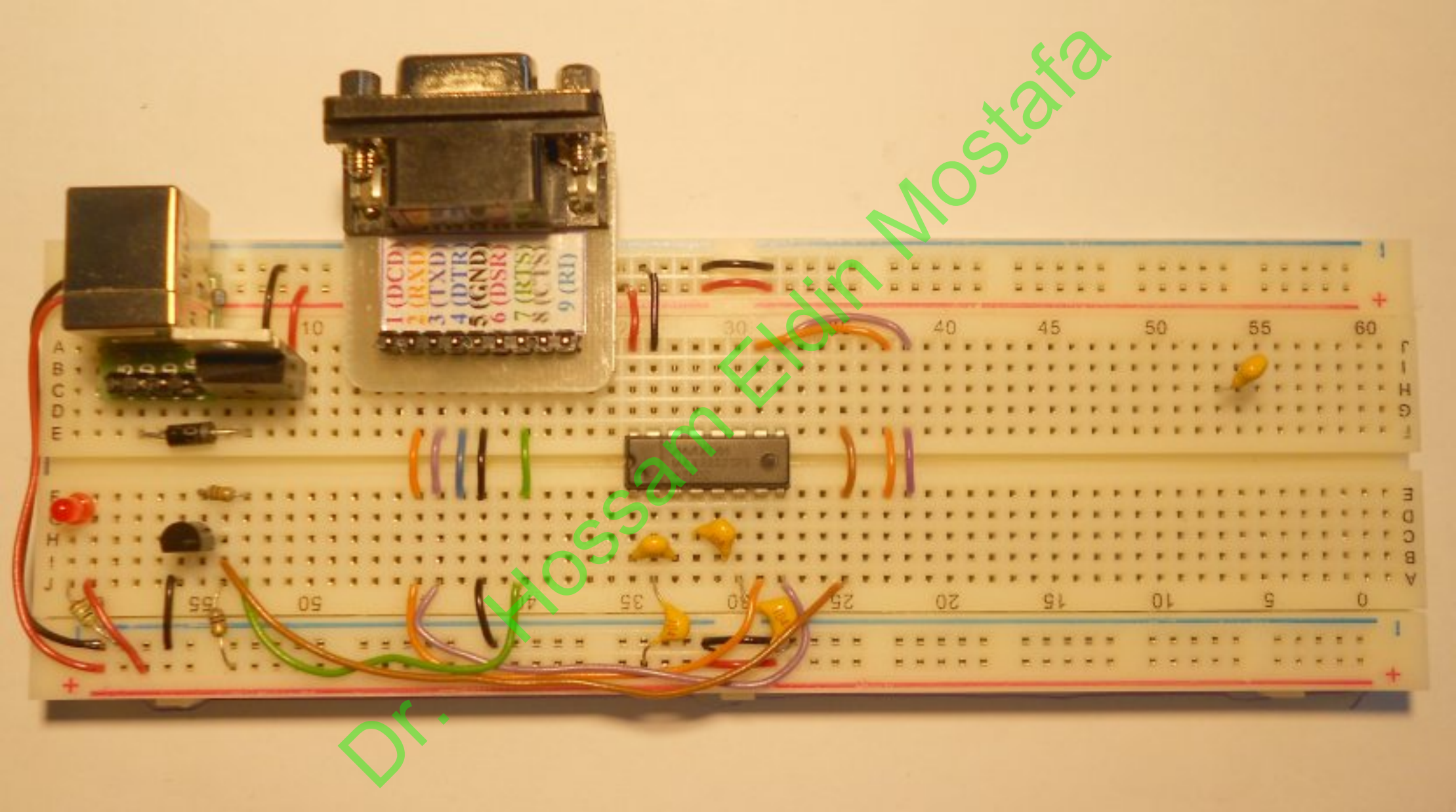
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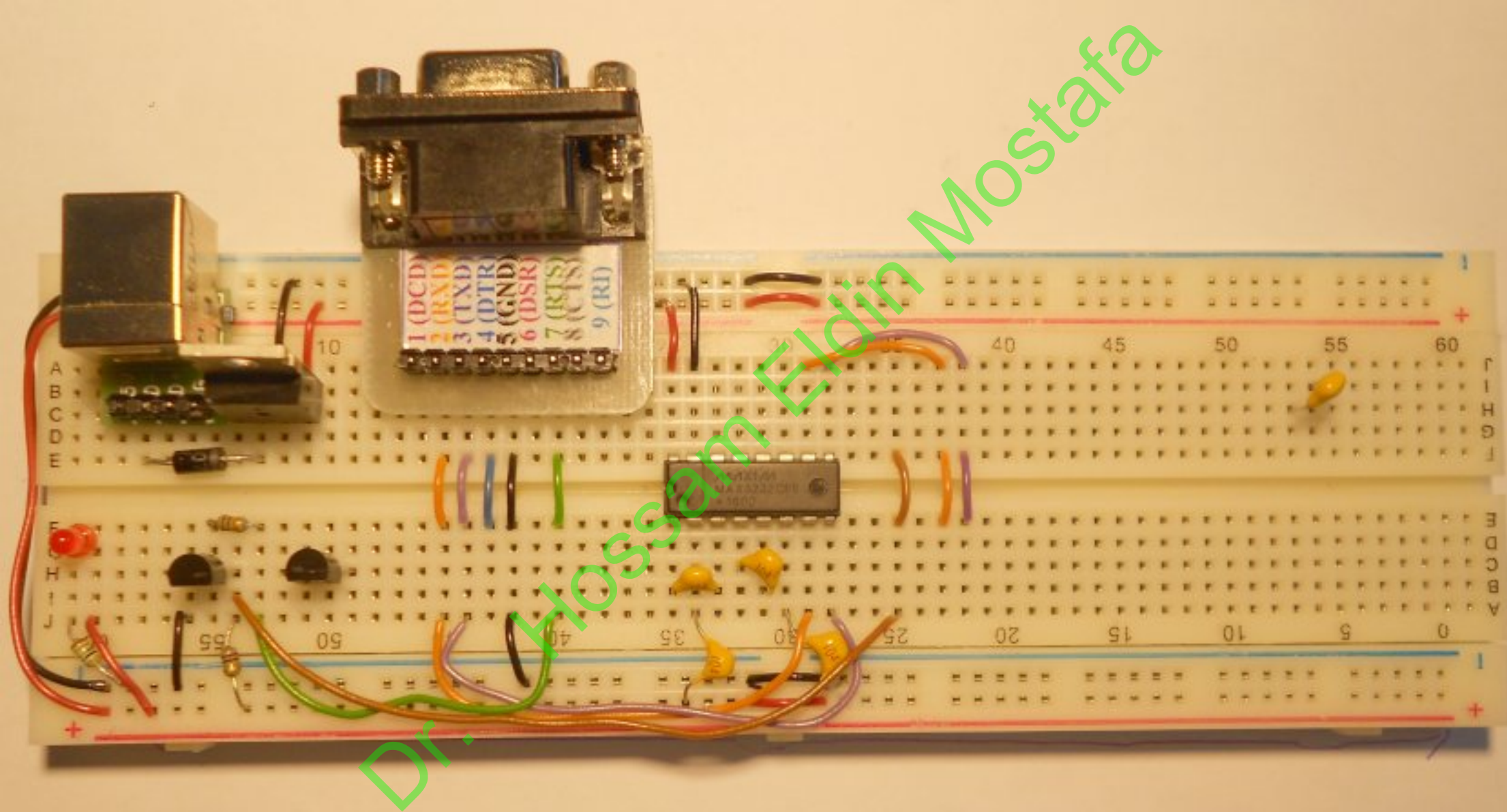
Hossam Eldin Mostafa

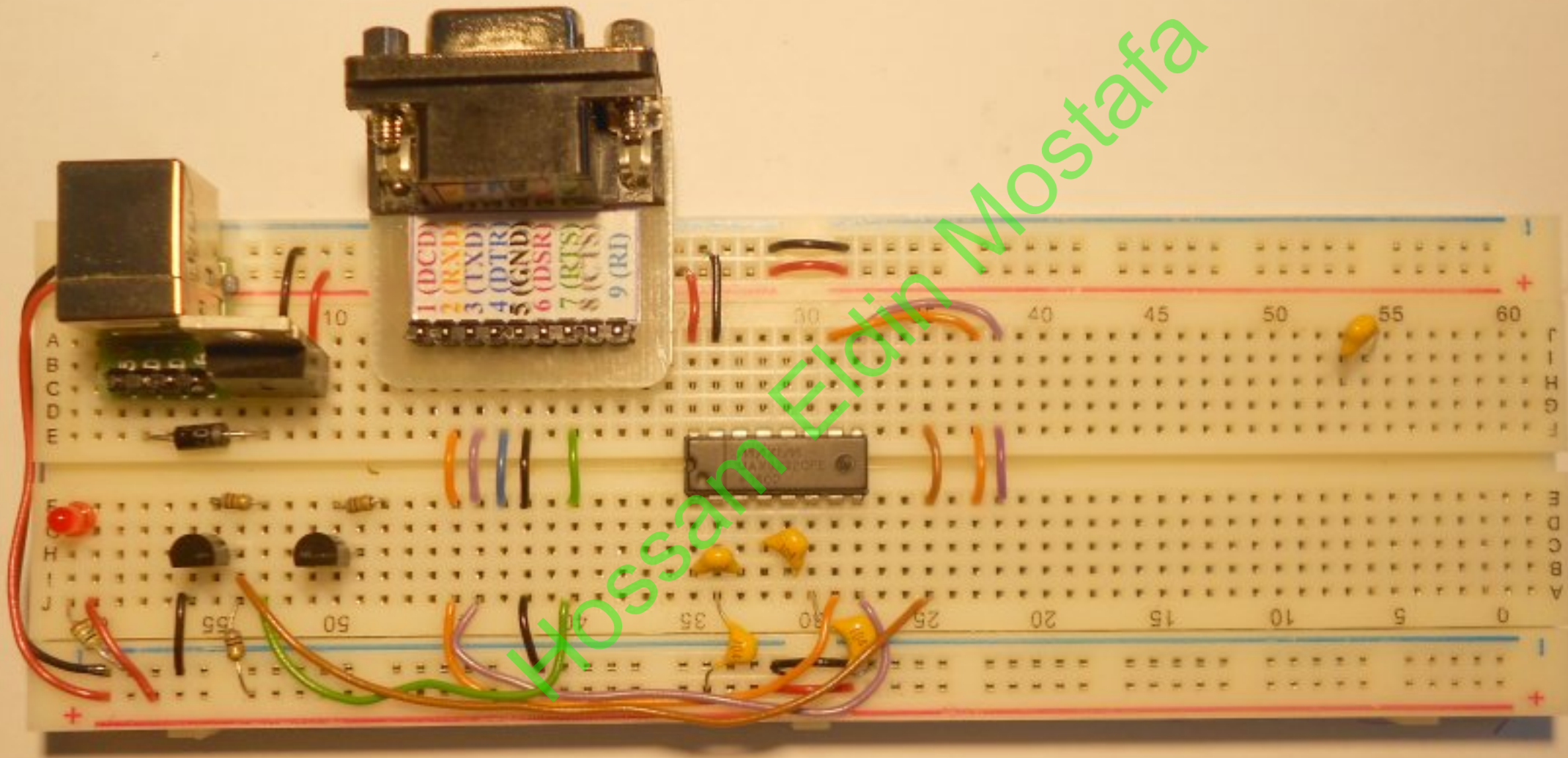


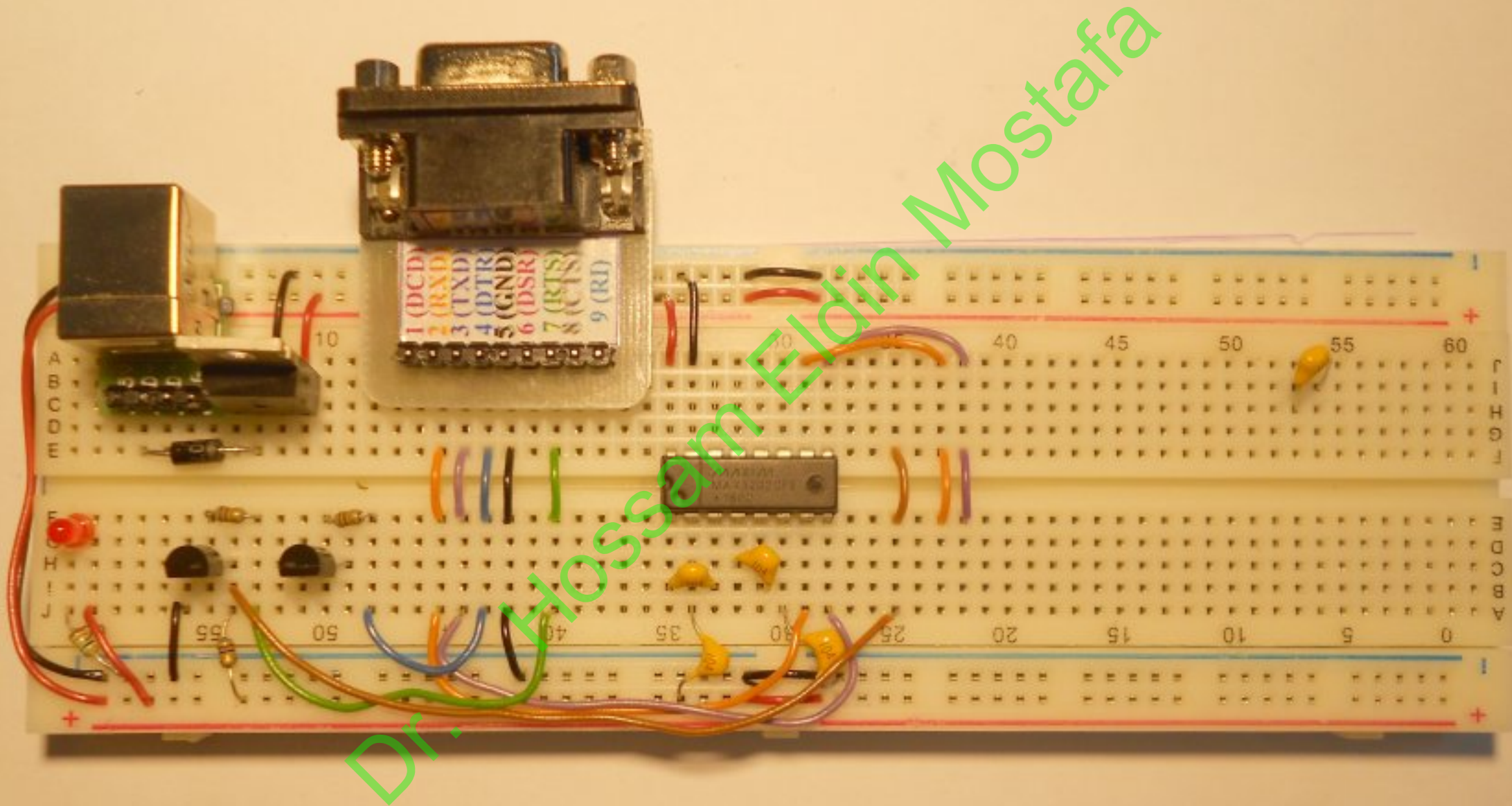


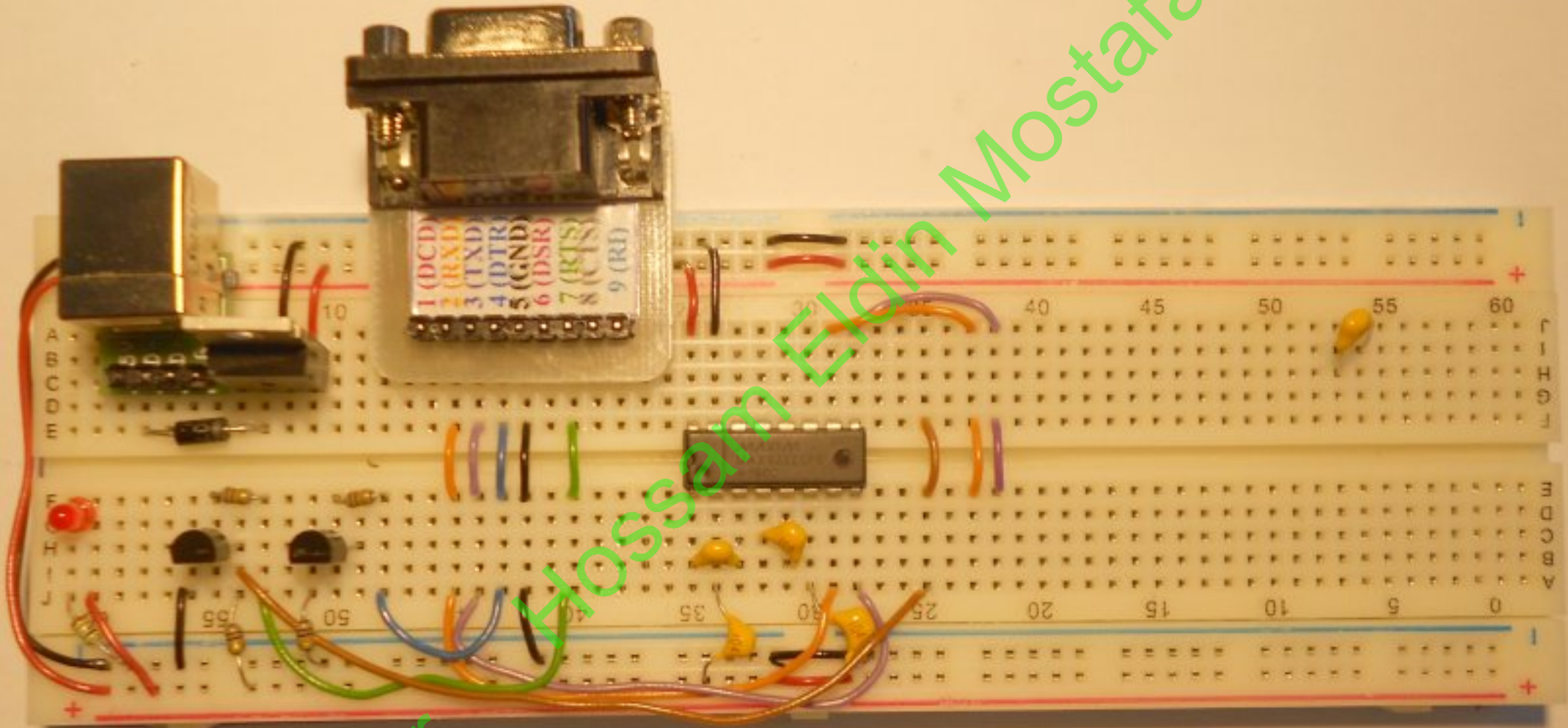




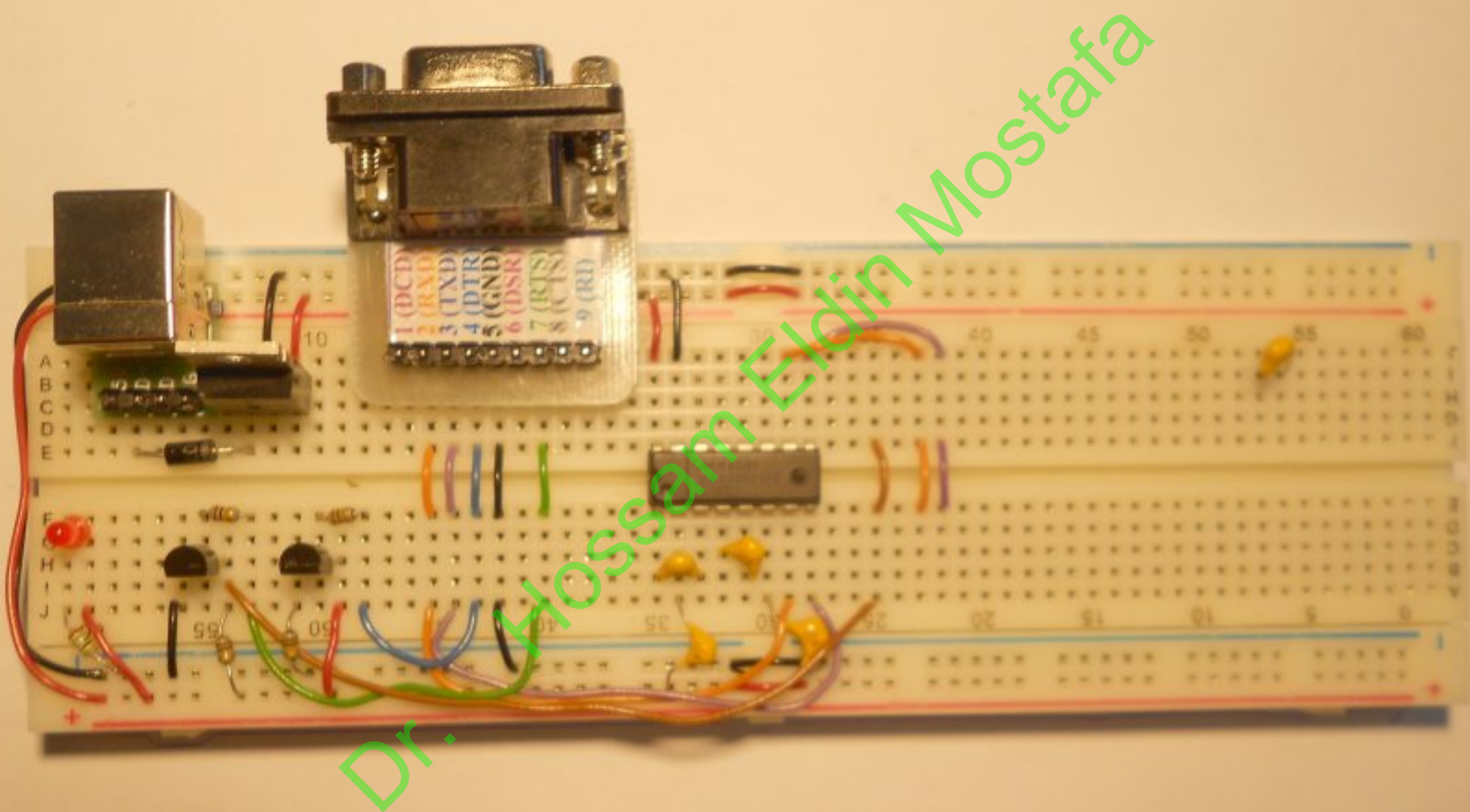




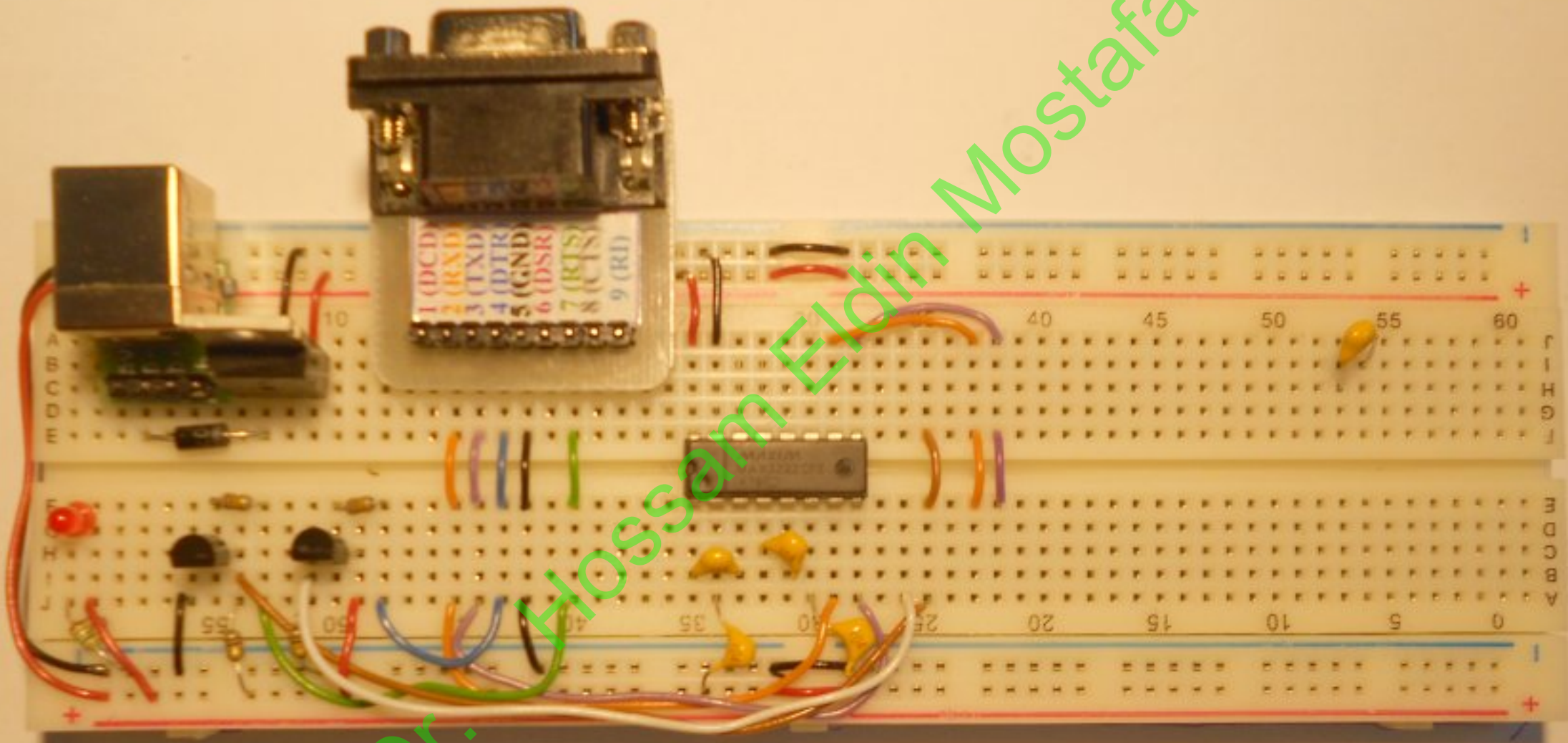




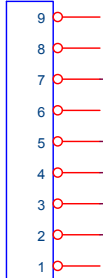
Dr. Hossem Eldin Mostafa



Dr. Hossam Eldin Mostafa



JP1
DB9 Female RS232 Breakout Module



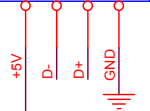
RTS

DTR

TXD

RXD

JP1
USB Break Out Module



D1

1N4007



U1
78RM33

VCC

VCC

D2

LED

R1

1K

VCC

C5

100nF

VCC

16

VCC

R1IN

13

R2IN

8

T1IN

11

T2OUT

7

C1+

1

C1-

3

C2+

4

C2-

5

GND

15

GND

U2

MAX3232

RTS

R1

10K

Q1

PN100

VCC

DTR

R4

10K

Q2

PN100

VCC

R5

10K

R1OUT

12

R2OUT

9

T1OUT

14

T2IN

10

VCC

C4

100nF

V+

2

V-

6

C3

100nF

General 2.7V - 3.3V
- 5.0V V
Microcontroller/
FPGA Supply,
Programming, and
Debugging Circuit

UC /PSEN

UC RST

Designed by Dr. Hossam Eldin Mostafa 2017

Power Suply - Microcontroller Programmng and Debugging Circuit

Bill Of Materials (BOM)

Item	Category	Quantity
MAX3232	ICs - RS232 Transceiver	1
78RM33	ICs LDO Regulator	1
1N4007	Diodes	1
PN100	NPN transistor	2
100nF	Ceramic Capacitors	5
LED ULTRA RED 3MM	LEDs	1
10K Ohm 1/6W	Resistors	4
1K Ohm 1/6W	Resistors	1
DB9 Female RS232 Breakout Module	Modules	1
USB Break Out Board	Modules	1
Colored Bread Board Wires	Wires	2
Mini Plier long nose	Tools	1
Diagonal Cutting Plier	Tools	1
Bread Board	Tools	1
USB to RS232 Serial Cable	Tools	1