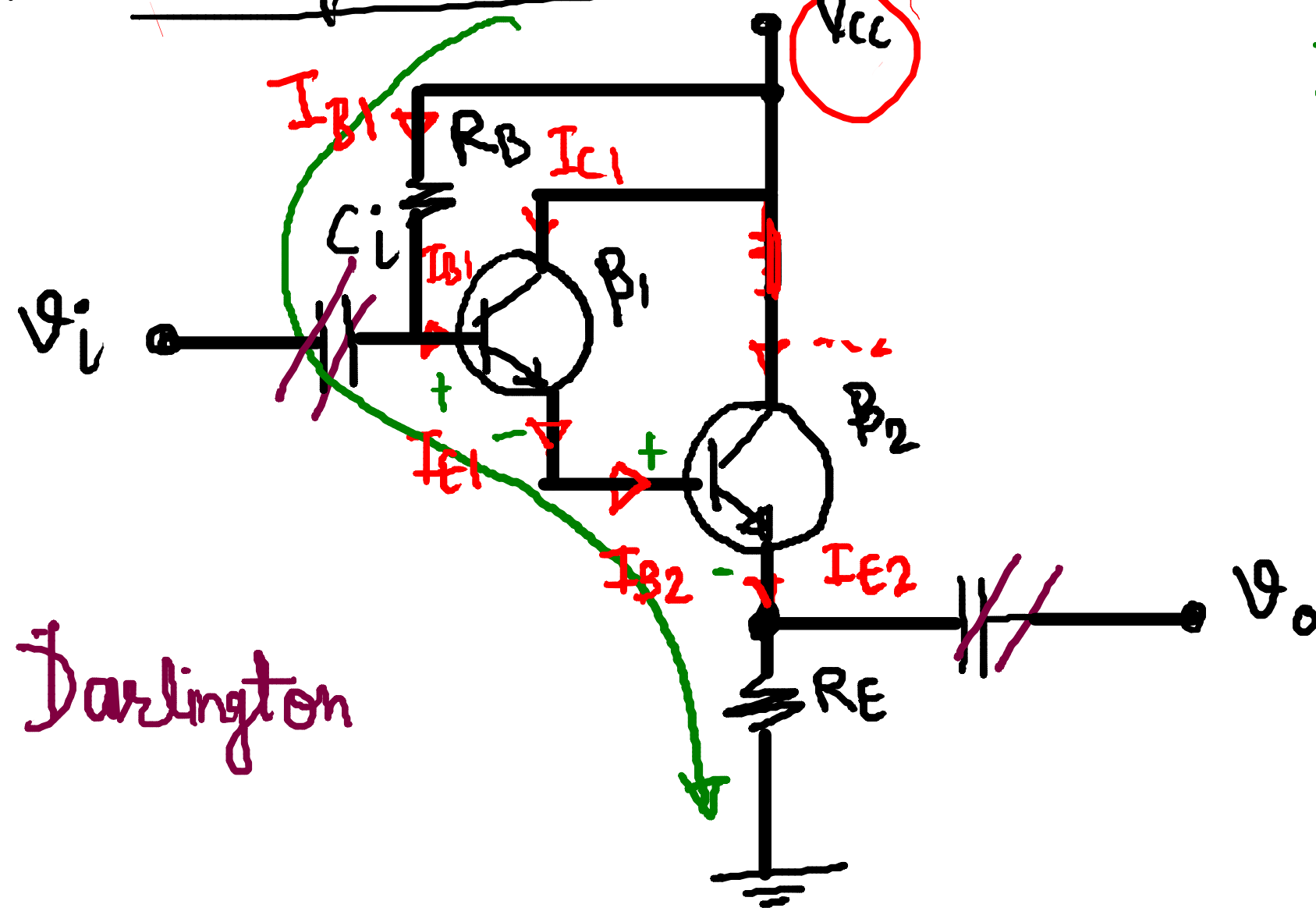


Multistage Transistor Circuits:

20 Sept 2017



$$I_{B1} = \frac{V_{CC} - V_{BE1} - V_{BE2}}{R_B + (1 + \beta_1)(1 + \beta_2)R_E}$$

$$I_{E1} = (1 + \beta_1) I_{B1}$$

$$I_{E2} = (1 + \beta_1)(1 + \beta_2) I_{B1}$$

$$\beta_1 = 50 ; \beta_2 = 75$$

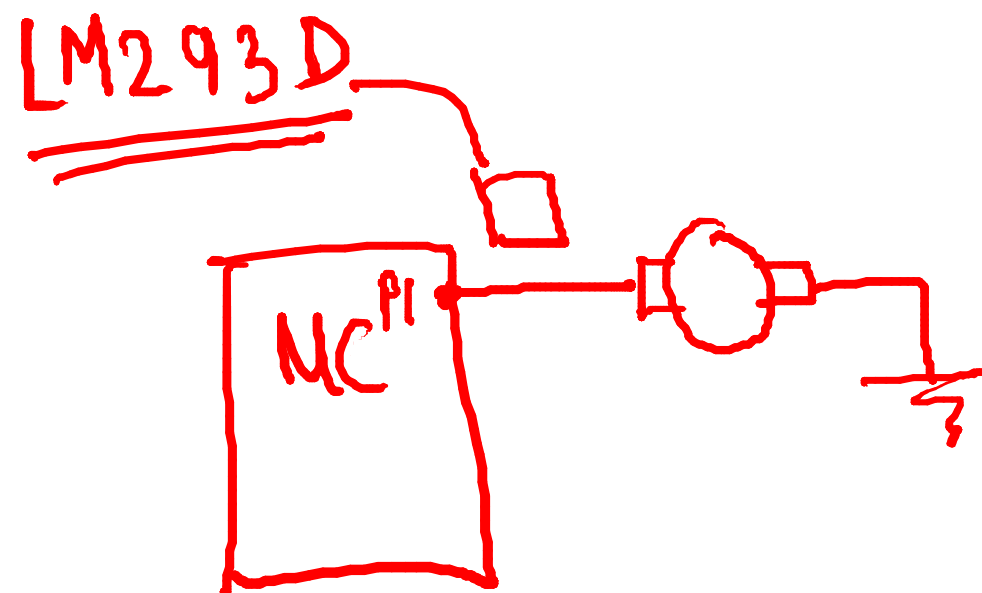
$$V_{CC} = 18 ; R_E = 470 \Omega$$

$$R_B = 2.2 M$$

$$I_{B1} = 4.12 \mu$$

$$I_{E1} = 0.2 \text{ m}$$

$$I_{E2} = 15 \text{ m}$$



CB

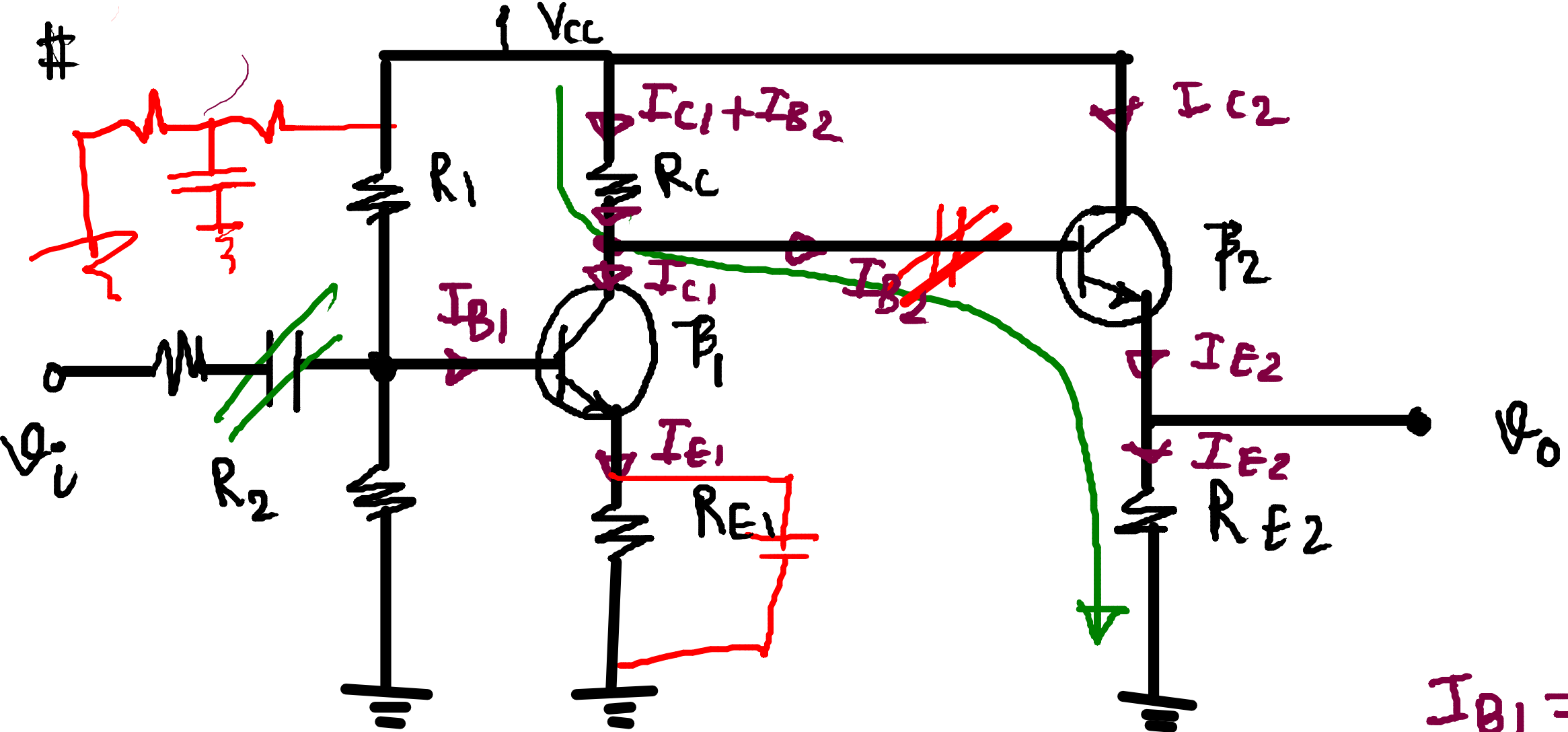
CE

CL

CB, CE, CE

CE, CB, CE

CB, CE, CL



$$V_{CC} = 14$$

$$R_1 = 33k, R_2 = 10k$$

$$R_C = 6.8k; R_{E1} = 2.2k$$

$$R_{E2} = 1.2k;$$

$$\beta_1 = 100; \beta_2 = 50$$

$$I_{B1} = \frac{V_{Th} - V_{BE1}}{R_{Th} + (1 + \beta_1) R_{E1}}$$

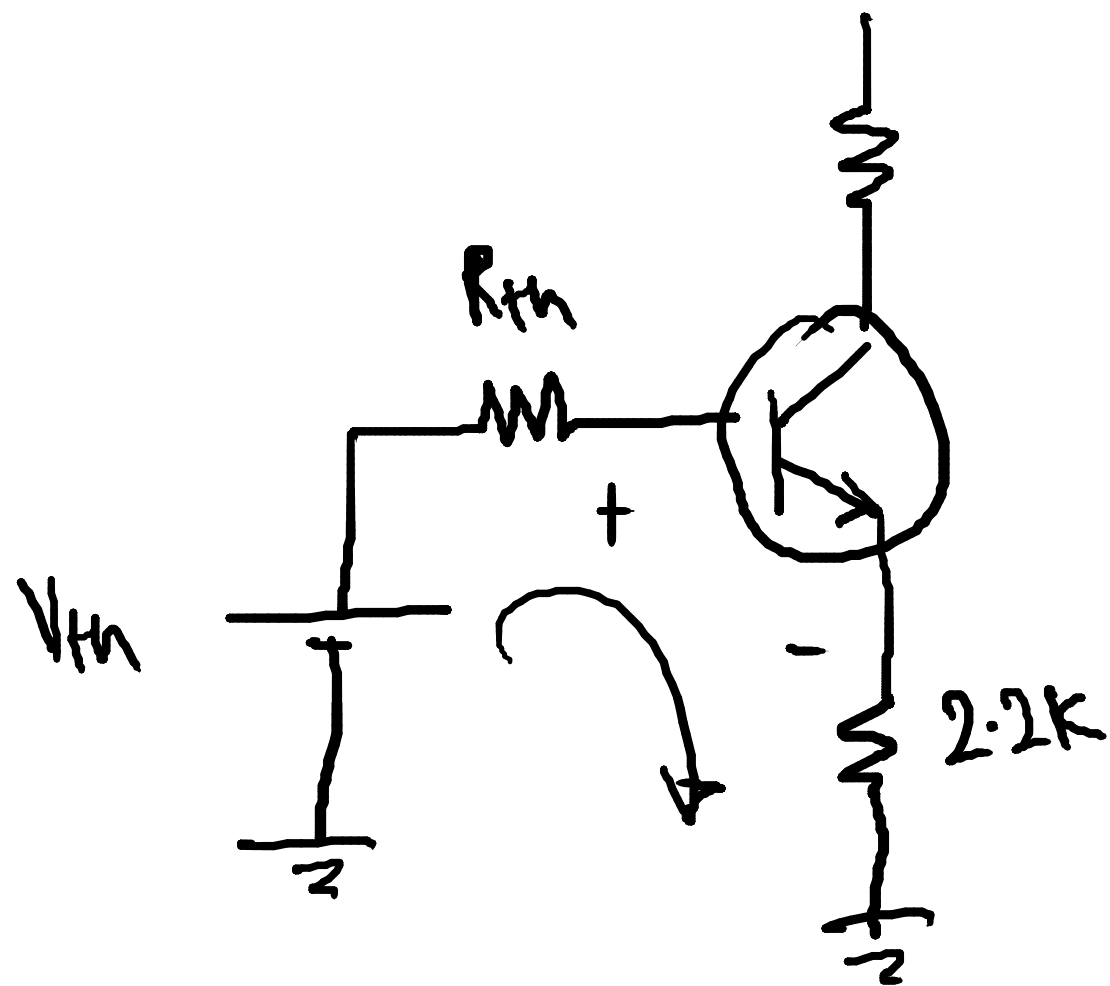
$$= 11.11 \mu A$$

$$I_{C1} = 1.11 mA \approx I_E$$

$$V_{CC} - (1.11mA + I_{B2}) R_C - 0.7 - (\beta_2 + 1) I_{B2} R_{E2}$$

Direct Coupled

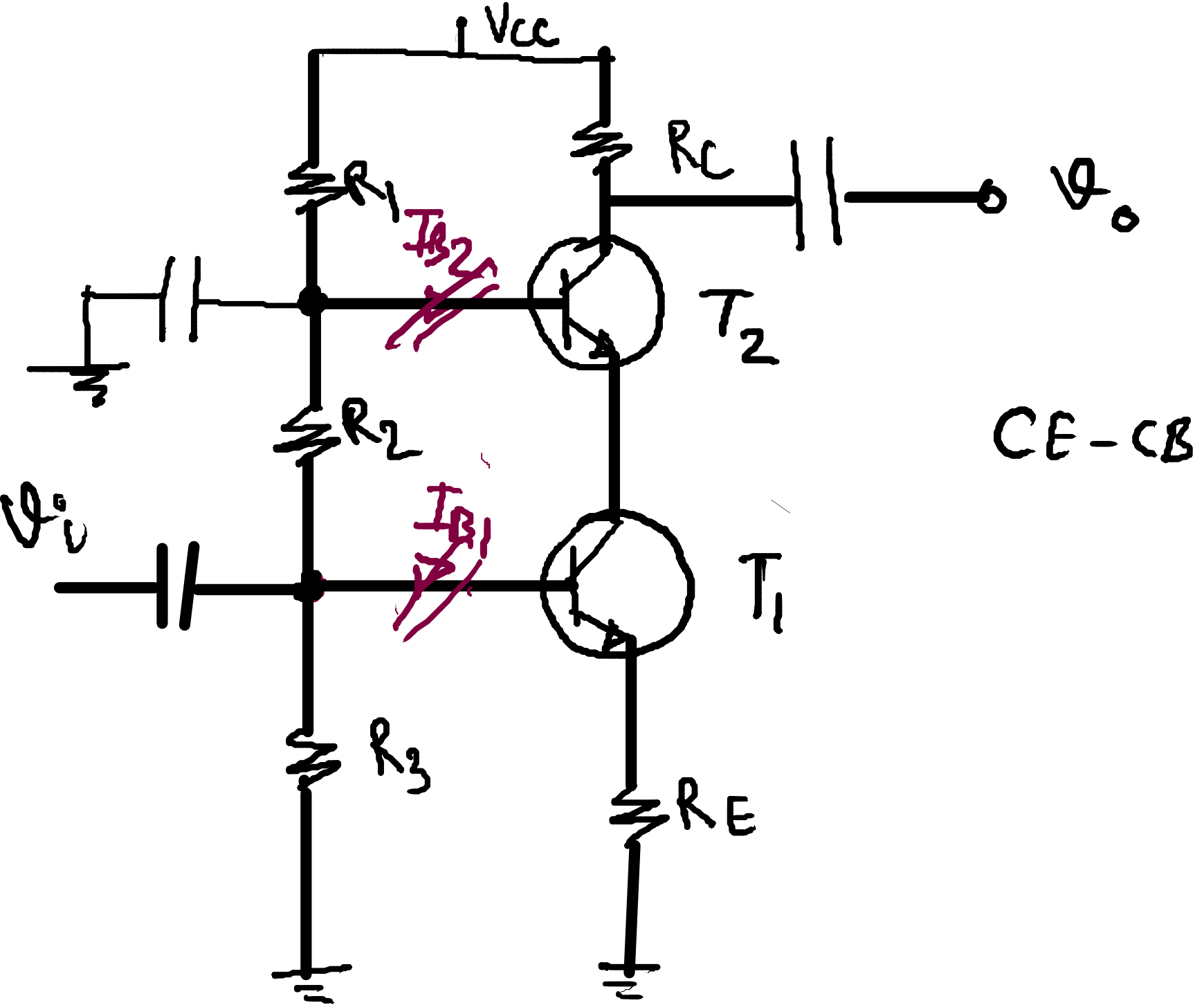
CE-CC



$$\frac{V_{th} - V_{BE}}{R_{th} + (1 + \beta) R_E} = I_B$$

$$I_{B2} = 85.5 \mu$$

$$I_{E2} = 4.3 \text{ m}$$



$$I_E = I_B + I_C$$