

Weekly Status Report
Report 1

EECE 460
TNC MCU Project

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Monday, September 20, 2020

Work and accomplishments this week

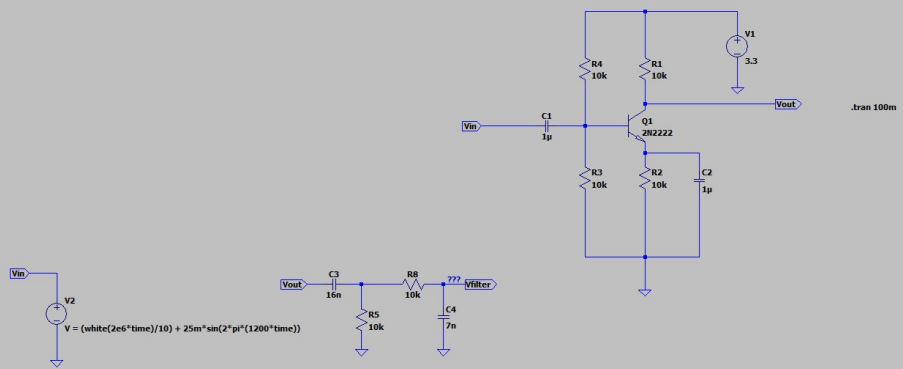
- Deliverable 3:
 - Diagram and Explanation of the tree
 - Testing Tree
- CRC generation code:
 - Value created based on input bit values
- Ltspice schematic of receiving circuit:
 - Low Pass Filer
 - Amplifier circuit

Planned Activities for Next Week

- Appendix F
- Test receiving circuit

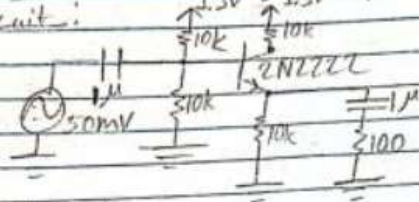
Time Sheet

Item	Date/Time	Description	Hours
1	9/20/2020 5pm-9:30pm	Deliverable 3	4.5
2	9/19/2020 2pm-7pm	CRC code	5
3	9/17/2020	Rx circuit schematic	4.5
Total:			14

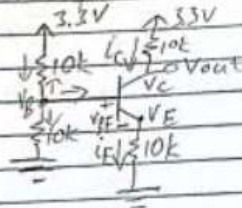


STM32 Voltage Amp

Circuit:



DC Analysis:



$$V_B = 3.3V / 2 = 1.65V$$

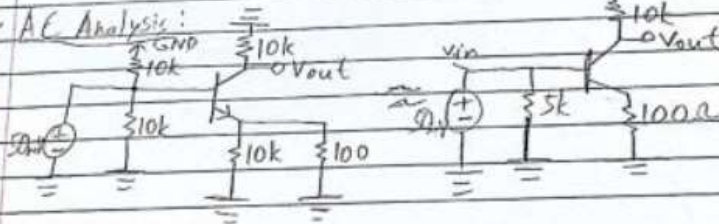
$$V_{BE} = 0.7 \Rightarrow V_E = 1.65V - 0.7 = 0.95V$$

$$\Rightarrow I_E = 0.95V / 100\Omega = 9.5mA \approx I_C$$

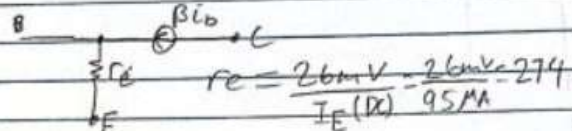
$$\Rightarrow V_C = V_{out} = 3.3 - 10k(I_C) = 3.3 - 10k(9.5mA)$$

$$\Rightarrow V_{out} = 2.35V$$

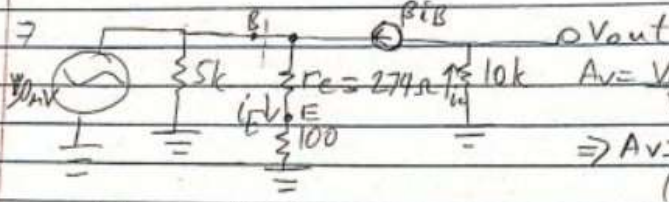
AC Analysis:



\Rightarrow T-equivalent model:



$$r_E = \frac{26mV}{I_E(DC)} = \frac{26mV}{9.5mA} = 2.74\Omega$$



$$A_v = \frac{V_{out}}{V_{in}} = \frac{-10k}{100 + 2.74}$$

$$\Rightarrow A_v = -10k$$

$$\Rightarrow A_v = -26.74 \Rightarrow V_{out} = -26.74(100mV_{pp}) = 2.674V_{pp} + 2.35V_{DC}$$