Assignment 2C Presentation
EECE 443

Team 2: MCU TNC Design
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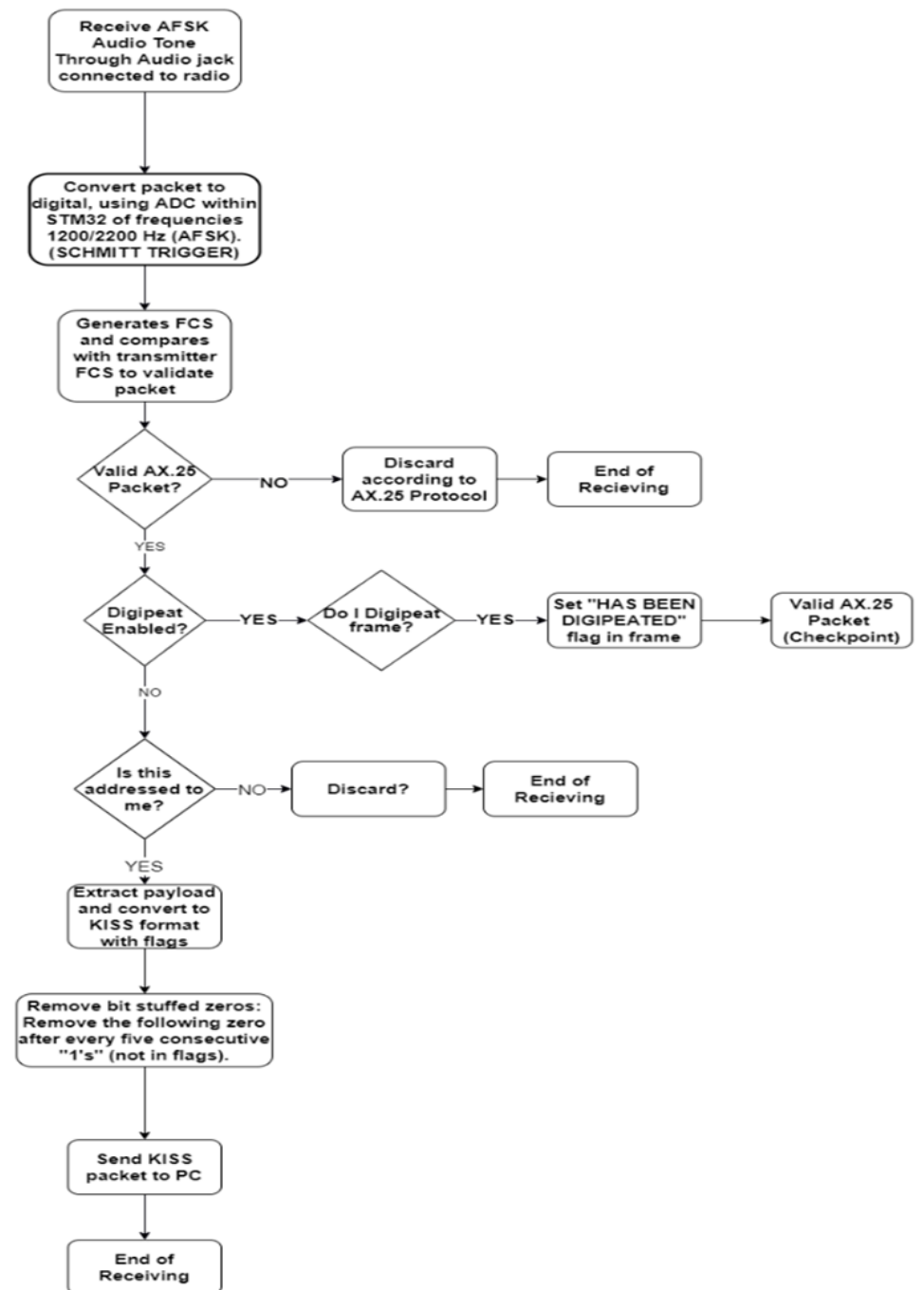David Cain – C00043561

April 2nd, 2020

MCU TNC Assignment 2C
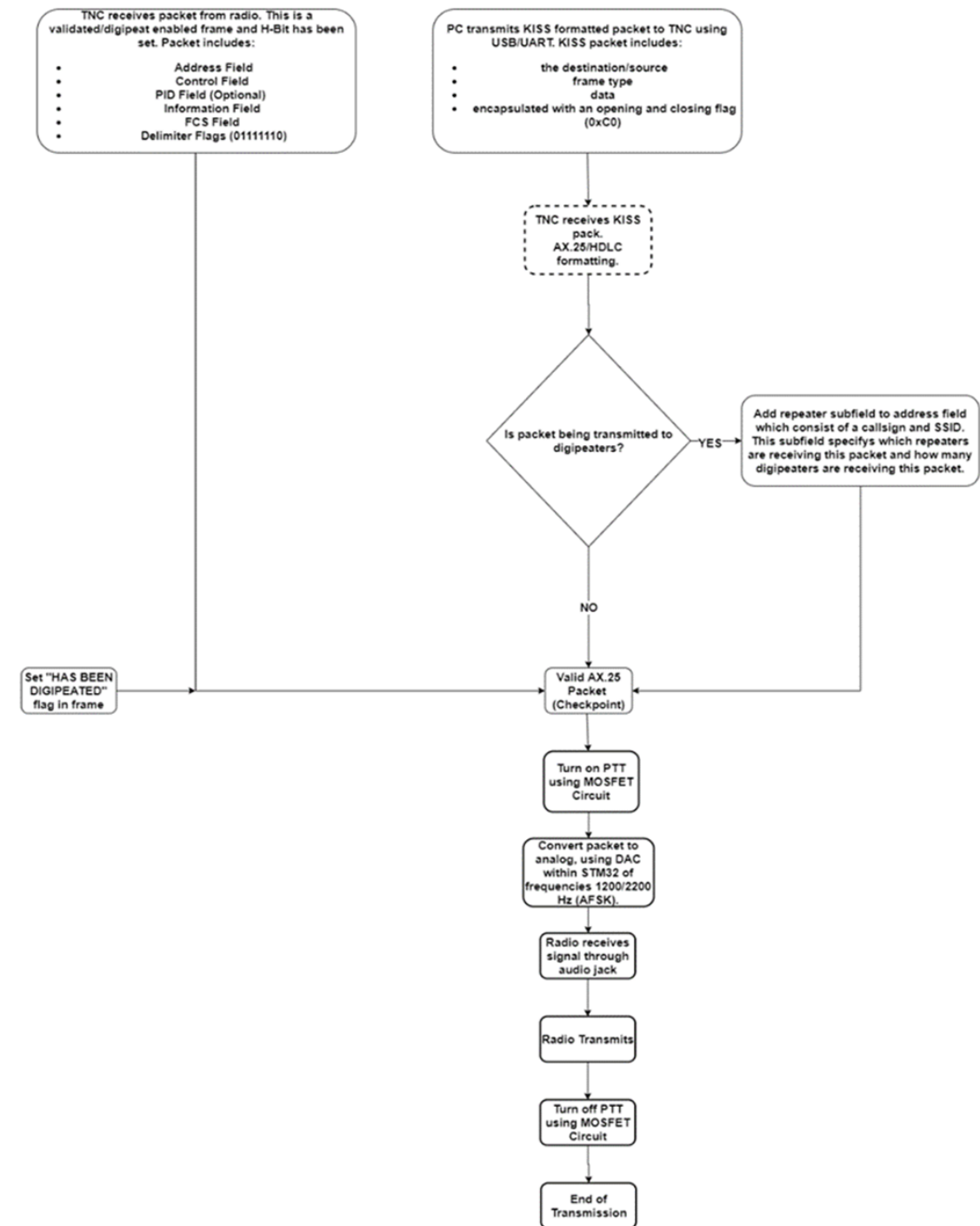
David Cain, Kobe Keopraseuth, and Kaleb Leon

Adjustments

- Added Safety requirements to Preliminary Design. Considered specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

- Made and Added OSI layered communication model to Appendix D

- Made flowchart easier to read as well as fixed some connections

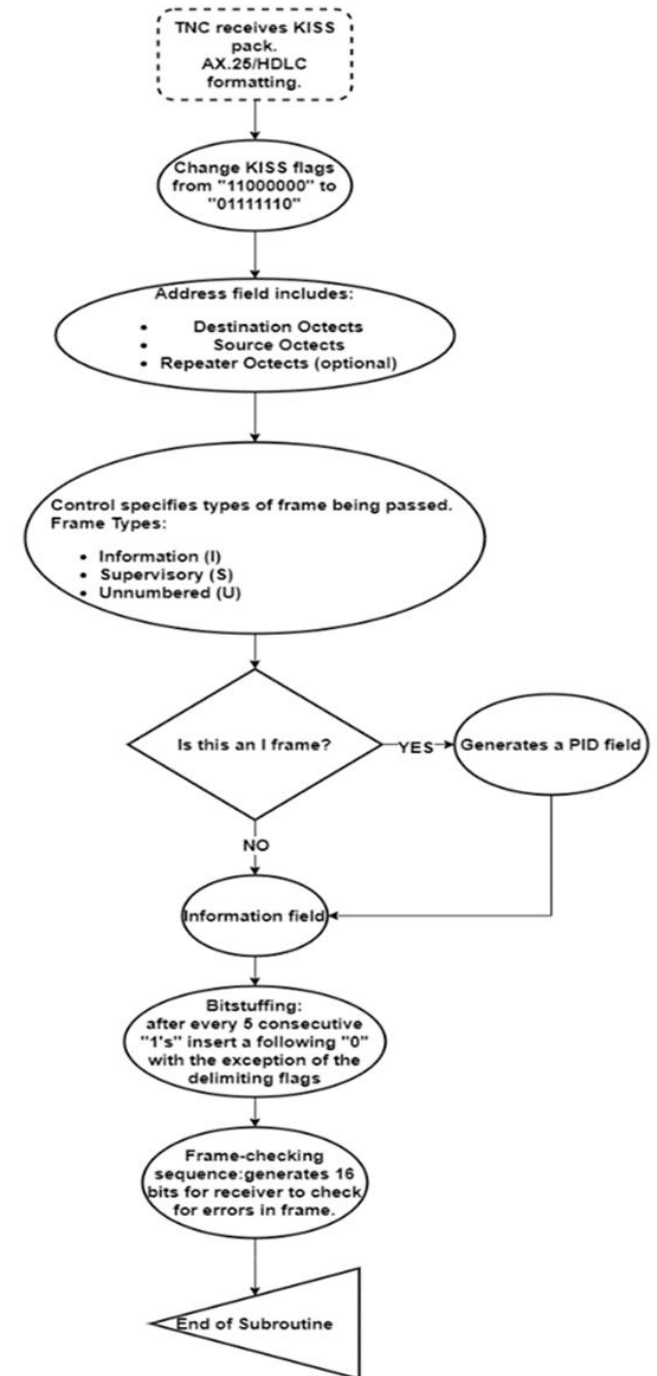- Corrected any Grammatical and Formatting Errors needed

Receiving Flowchart

Transmitting Flowchart

TNC receives packet from radio. This is a validated/digipeat enabled frame and H-Bit has been set. Packet includes:

- Address Field
- Control Field
- PID Field (Optional)
- Information Field
- FCS Field
- Delimiter Flags (01111110)

PC transmits KISS formatted packet to TNC using USB/UART. KISS packet includes:

- the destination/source
- frame type
- data
- encapsulated with an opening and closing flag (0xC0)

TNC receives KISS pack. AX.25/HDLC formatting.

Is packet being transmitted to digipeaters?

YES → Add repeater subfield to address field which consist of a callsign and SSID. This subfield specifys which repeaters are receiving this packet and how many digipeaters are receiving this packet.

NO

Set "HAS BEEN DIGIPEATED" flag in frame

Valid AX.25 Packet (Checkpoint)

Turn on PTT using MOSFET Circuit

Convert packet to analog, using DAC within STM32 of frequencies 1200/2200 Hz (AFSK).

Radio receives signal through audio jack

Radio Transmits

Turn off PTT using MOSFET Circuit

End of Transmission

Formatting Flowchart

OSI Layer Communications Model