# CENG 317 Proposal

1. Basic Info
   1. Name: Alexandra Hutan
   2. Date: 2020-09-13
   3. Section: 0NA
   4. Sensor/Effector choice: SD card
2. I will make a USB serial device that will send output from a sensor via [Seeed Studio assembly](Seeed%20Studio%20assembly). This can be connected via a USB cable to a PC and PuTTY can be used for debugging. They can be also connected to a Pi via USB but not necessarily in this term.
3. Preliminary Bill of Materials
   1. OPL: <ShenZhen>
   2. MPN: DM1AA-SF-PEJ(82)
   3. Qty: 1
   4. Link:  <https://www.hirose.com/product/download/?distributor=digikey&type=2d&lang=en&num=DM1AA-SF-PEJ(82)>
   5. Description: CONN SD CARD PUSH-PUSH R/A SMD
   6. Manufacturer: Hirose Electric
   7. Package
4. Specifications
   1. What does it sense/effect?
      1. The SD card will interact with an interface to read and write data
   2. How accurate is it?
      1. Reliability is around 100 000 write cycles
   3. Voltage range
      1. Supports either 3.3 V or 1.8 V signaling
   4. Current draw:
      1. SD cards can take between 5–4mA

Protocol: SPI

* 1. Additional components needed: Blue Pill
     1. OPL: <digikey>
     2. MPN: STM32F103C8T6
     3. Qty: 1
     4. Link: <https://media.digikey.com/pdf/Data%20Sheets/Adafruit%20PDFs/3675_Web.pdf>
     5. Description: ATmega32U4 Itsy Bitsy 32u4 AVR® ATmega AVR MCU 8-Bit Embedded Evaluation Board
     6. Manufacturer: Adafruit Industries LLC
  2. Additional components continued: DS18B20
     1. OPL: <seeed>
     2. MPN: DS18B20+
     3. Qty: 10
     4. Link: <https://datasheets.maximintegrated.com/en/ds/DS18B20.pdf>
     5. Description: SENSOR TEMPERATURE 1-WIRE TO92-3
     6. Manufacturer: Maxim
     7. Package: TO-92-3
  3. Additional components continued: STLink v2 Peogrammer
     1. OPL: <digikey>
     2. Qty: 1
     3. Link: <https://www.st.com/content/ccc/resource/technical/document/data_brief/80/76/2b/dc/45/c5/46/90/DM00027105.pdf/files/DM00027105.pdf/jcr:content/translations/en.DM00027105.pdf>
     4. Description: ST-LINK STM8/STM32 V2 PROGRAMMER
     5. Manufacturer: Adafruit Industries LLC
     6. Package: Bulk
  4. Additional components continued: Micro SD adapter
     1. OPL: <Adafruit>
     2. Qty: 1
     3. Link: <https://cdn-learn.adafruit.com/downloads/pdf/adafruit-micro-sd-breakout-board-card-tutorial.pdf>
     4. Description: MICROSD CARD BREAKOUT 5V OR 3V
     5. Manufacturer: Adafruit Industries LLC
  5. Additional components continues: Jumper wires
     1. OPL: <Amazon>
     2. MPN: EL-CP-004
     3. Qty: 120
     4. Package: Bulk
  6. Additional components continued: Jumper wires
     1. OPL: <digikey>
     2. MPN: PRASA1-16F-BB0BW
     3. QTY: 1
     4. Link : <https://media.digikey.com/pdf/Data%20Sheets/Tyco%20Electronics%20Alcoswitch%20PDFs/PRA,PRB,PRD%20Series.pdf>
     5. Description: SWITCH ROCKER SPST 16A 125V
     6. Manufacturer: TE Connectivity ALCOSWITCH Switches
     7. Package: Tray

1. References:
   1. [Fritzing for Inventors](Fritzing%20for%20Inventors)
   2. [DIY logger](DIY%20logger)
   3. [SD Standard Overview](SD%20Standard%20Overview)