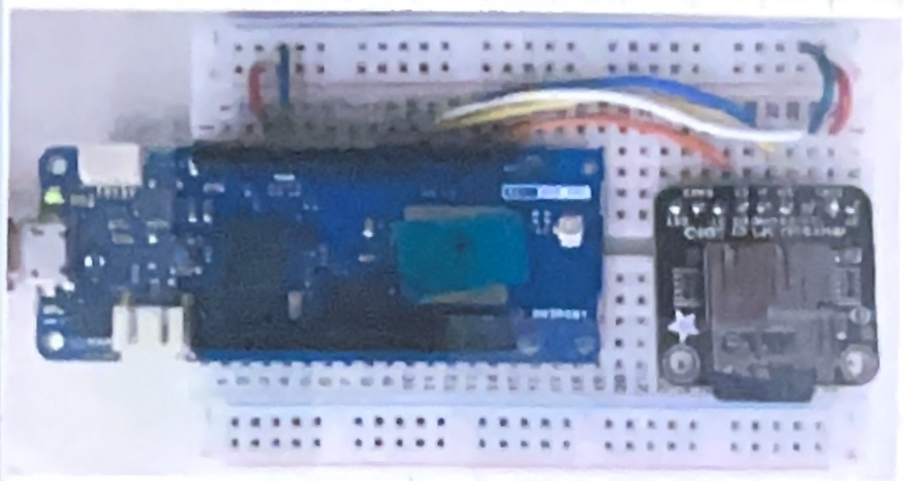


Figure 1

SD card circuit using a MKR 1310 and 3.3v SD card module.

Objectives

- [ ] Start the SD card without error
- [ ] Check if files exist
- [ ] Remove files
- [ ] Write to a file
- [ ] Read from a file

Connections

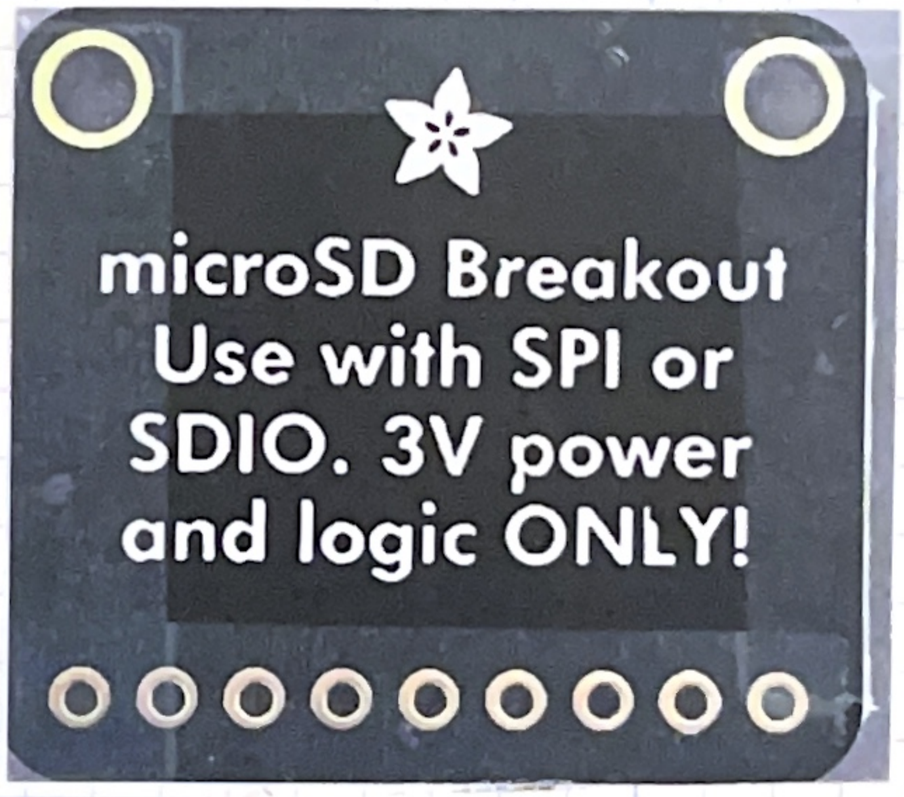
The SD card module is ~~only~~ only for use with 3.3v power. It uses the SPI protocol.

SD Card	MKR1310
SI	MOSI (8)
SO	MISO (10)
CLK	SCK (9)
CS	(7)
3V	VCC (3.3V)
GND	GND

Table 1

Connections

The chip select (CS) can be any digital pin. We will specify this pin in code.



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```
#include <SPI.h>
#include <SD.h>

int cs = 7;
float pi = 3.14;
long TeamBuildingTBudget = 100000;

void setup()
{
  Serial.begin(9600);

  // Wait for us to open the serial montior
  while(!Serial){} → Don't use this line on sensors in the field!!!
  pinMode(LED_BUILTIN, OUTPUT);

  Serial.print("#CPE! Chronic Physics Enthusiasm!");


  // Try to start the sd card module
  while (!SD.begin(cs))
  {
    Serial.print("SD card failed to initialize");
    // Use the builtin LED to blink at us.
    digitalWrite(LED_BUILTIN, HIGH);
    // Try again after 2 seconds.
    delay(2000);
  }

  Serial.print("SD Card successfully initialized!");
  digitalWrite(LED_BUILTIN, LOW);
  // Check if a file exists
  if (SD.exists("data.txt"))
  {
    // Do something if the file already exists
    Serial.println("The file already exits!");
    Serial.println("Removing it...");
    // Remove the file
    SD.remove("data.txt");
  }
```

```
42  // Write to a file
43  File outputfile = SD.open("data.txt", FILE_WRITE);
44  if (outputfile)
45  {
46    outputfile.print("My Floating point number is ");
47    outputfile.println(pi);
48    outputfile.print("Hauger will spend ");
49    // This is a long data type
50    outputfile.print(TeamBuildingTBudget);
51    outputfile.println(" on Thursday");
52    outputfile.close();
53  }
54  else
55  {
56    Serial.print("Something went wrong with writing...");
57  }

59  // Read from a file
60  outputfile = SD.open("data.txt", FILE_READ);
61  if (outputfile)
62  {
63    while(outputfile.available())
64    {
65      // Reads one byte at a time.
66      char data = outputfile.read();
67      Serial.print(data);
68    }
69   outputfile.close();
70  }
71 }
```

When designing a field test, make sure you know if the SD card is collecting data! -> use an LED.