1. Team Number: 201-3
2. Team Name: Random
3. Team Members: Bao Tran, Kaiwen Chen, Luke Favret, Adam Salyers
4. Application Name: Aspairagust
5. Application Description: A random number generator. Not pseudo, but barring the possibility that random numbers don't actually exist as random as you can get. We are planning to make this by measuring real natural phenomena that have an inability to be mapped using mathematical models. Specifically we are looking at turbulent wind flow. In turbulent wind flow it is effectively random because it cannot be modeled mathematically (as of now). So by measuring the direction of the the eddies/vortices downstream of a given turbulent flow, the team can effectively generate random numbers.

   Since the shape and direction of turbulent flow cannot be bounded, the team will implement an image recognition software that will detect the pixels of the flow. If we can generate a binary 1 or 0 we can generate a number of digits for that by putting more 1's and 0's next to each other. If one pixel increases, then the assigned value will be 1, and if it decreases then it will be a 0. This application will create a reliable source of unpredictable number generation.

6. Vision Statement: For computer scientist or security specialists, who needs real random number generation (encryption, mathematical models, programming languages, etc.). The [product name] is in the category of random number generator that will generate numbers that cannot be predicted for many applications such as scientific modeling and encryption. Unlike other random number generators, using turbulent flow will provide a larger quantity of measurement data within a shorter amount of time, which in turn produces more efficiency. And also unlike logical based random generators that are used by other computer programs, this uses actual experimental data and natural processes that cannot be predicted, which in turn gives the definition of being truly random.
7. Version Control:
   a. Team Logs: gitlab.com/randomxx1
   b. Milestone Submissions: gitlab.com/randomxx1
   c. All project: gitlab.com/randomxx1
8. Development Method: We will use iterative development to create the "base" product and then waterfall development to improve upon it. Since the team will not have an active customer to work closely with, the team will follow a linear model instead of an iterative model. Our methodology will be scoping, planning, designing, develope, release, and track and monitor.
9. Communication Plan: We will use GroupMe, email, Google Drive, and GitLab to communicate with each other and meet face-to-face weekly for progress updates and collaboration. GroupMe will be the main source of communication for quick messages and questions, and Google Drive will consists of all brainstorming and research documents. The main code and version control workflow will be in GitLab.

10. Proposed Architecture Plan: We will use client-side programs to request the random number. The request will then be sent to our back-end server, which will use OpenCV with C++ to determine the wind direction. Our server will then turn this into a random number, and then return this random number to the user in the front-end. The team will need a source of turbulent flow videos for this program which will be from public sources.
11. Meeting plan: Mon/Wed 9-11am ish face-to-face in the CASE building and also online (Hangout, Skype, etc.) as an alternative.