**BME Capstone Design Project Weekly Progress Report**

**Project Title:** KK01: Design of extremely small satellite

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**Reporting Week:** Oct29 - Nov2

**Project Manager of the Week:** Owais Nakhuda

**Tasks Outlined in Previous Progress Report:**

* Continue research for satellite payload ideas relating to Biomedical and Material Sciences

**Progress made in Reporting Week:**

* Researched the prospect of a torrent distribution system using multiple cubesats in space.
* The possibility of testing bacteria in space.

**TORRENT SATELLITE NETWORK**

The torrent cubesat would allow faster image processing as over a cluster of 30 cubesats would seed data pockets and then send it to one master cubesat which is 10 by 30. This would greatly increase the speed of files sent to space

**MICROBIAL RESEARCH CUBESAT**

The bacterial research cubestate proved to be difficult as 4 types of solute would need to fit in a 10 by 10 cubesat. The solutes consisted of the bacteria, growth hormone, the antibiotic and the freezing agent. The purpose of the experiment would be to analyze the growth of bacteria in space and see how the antibiotic effects the bacteria. In space bacteria tends to grow more quicker. To observe the growth of the bacteria a spectrometer would be added.

**Tasks for Next Week:**

* Continue research into material sciences and biomedical payload
* Conduct research into required mechanics for biomedical payload
* Conduct research into the growth of MOF crystals

**References**

<https://www.frontiersin.org/articles/10.3389/fmicb.2018.00310/full?fbclid=IwAR2YOXQyk1Tk47JakGcSOTx--USeCgAOUTaThihBEAGek1XkLMS27WY-7i4>

<https://ieeexplore-ieee-org.ezproxy.lib.ryerson.ca/document/6415828>