Footprint Calculator for Hospitals and Universities

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ABSTRACT
Undoubtedly the world is progressing at a very rapid rate. However, this progression is being achieved at the expense of one of the most valuable resources of our planet – The Environment. Mankind has become so blinded by the advancements they are making, that they are forgetting to protect the one thing they live in.

Our environment has become the recipient of all sorts of negative consequences which are a byproduct of the human development. Due to high competition between the developed nations and the developing nations, the governments of the world are doing very little to conserve and protect the environment. Huge corporations around the world dump millions of toxic wastes in to the earth’s environment on a daily basis. These toxic wastes not only impact our soil, but also our air and water. Despite being aware of the fact that this will affect the future generations these corporations do not seem to stop or reduce what they are doing. Furthermore, it is just not the humans who have to bear the consequences – all other living organisms also have to suffer due to this.

One of the main strategies to ensure or at least to keep a check that corporations around the world do not emit harmful substances in to the earth’s environment is by letting them know their ‘Carbon Footprint’ using a carbon footprint calculator. A carbon footprint calculator is a tool used for estimating the amount of carbon dioxide an individual is responsible for expending over a certain period of time, likely one year. In some cases, the carbon footprint may be referred to as an ecological footprint or eco footprint, but this term usually implies more than just the expending of carbon dioxide. It takes into account pollutants, for example. The main benefit of a carbon footprint calculator, for those who are interested in being green, is finding out where your biggest expenditures are and figuring out how to cut down.

Similar to calculating carbon footprint of an individual, carbon footprint of an organization can also be calculated by having proper records of the various resources used by the organization. As a part of my senior project, my team “University Footprint” and I have developed two unique Footprint calculators for two distinct institutions existent all over the world –

• Universities and Schools
• Hospitals and Clinics

1. HOSPITAL FOOTPRINT CALCULATOR
This initial project was a client based project.

In this project, our main aim was to develop and provide an efficient web based application from an existing spreadsheet model for the Dartmouth Hitchcock Medical Center, located in New Hampshire – United States. The purpose of this web based calculator interface is to have the tool available to the greater medical industry as a whole so hospital and centers are informed of their environmental and ecological footprint. As a part of our client agreement, we made the user interface friendlier and dynamically appealing. Not only that we reverse-engineered their whole calculations to ensure no data redundancy as well as efficiency during calculations.

We later hosted this calculator using Google sites which would be later in due time renamed by our client.

We believe that major Hospitals across the United States and the world can use this calculator and have an idea about the Carbon emission caused by them and take steps in order to reduce it (see Figures 1 and 2).

Figure 1. Dartmouth-Hitchcock Eco-Health Footprint Calculator
2. UNIVERSITY FOOTPRINT CALCULATOR

Inspired by the DHMC Footprint calculator, we also decided to develop a similar application which would calculate Footprint for a School based setting.

As one of the two parts of the project, we developed an ecological calculator for universities across the nation to utilize. The purpose of the calculator is for these entities to calculate their “footprint” given standard operations to keep universities running. When the governing bodies of the universities view their footprint results, they can then take measures to reduce their consumption of natural resources in order to reduce their footprint.

For the University Calculator, we determined the main categories of consumption any particular university uses and contributes to the overall footprint and then populate an Excel spreadsheet which will help calculate their Carbon Footprint accordingly. After doing so we developed a web-based site through Google Sites as a primary host for the spreadsheet. The spreadsheet is included on the site as a standard location for a download link. Other universities interested in determining their footprint or viewing Carnegie Mellon’s footprint, for example, could browse the site and on the homepage view the detailed results or just a simple summary of the output (see figure 3).

The benefit that can be gained from the university perspective is an accurate measure of its ecological footprint. With the development of this application, universities can reduce their impact and become more ecologically friendly.

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Figure 2. Eco-Health Footprint Calculator

Figure 3. University Footprint Calculator