CFTN: A Network that Loops Everyone in to Contribute

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Introduction

A carbon footprint is defined as the total amount of greenhouse gases produced to directly and indirectly support human activities, usually expressed in equivalent tons of CO2.

A primitive man living in a cave has few carbon footprints, because he only need to breath and make fires.

For a man living a modern life, however, carbons can be released from everything being consumed during any of his daily activities.

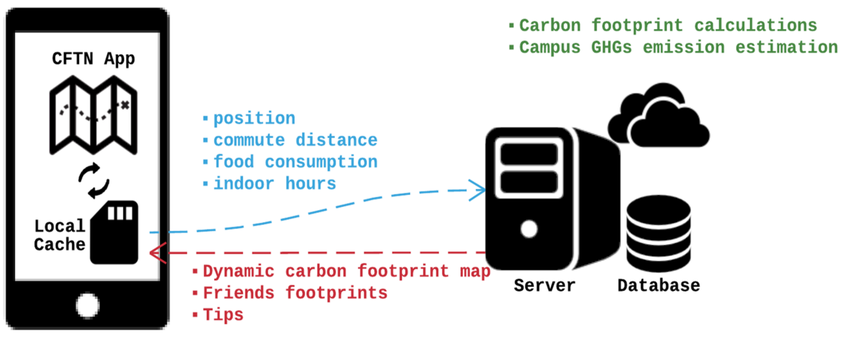
While we already have some household based tools to estimate the static carbon footprint, we do not know people's personal dynamic carbon footprint very well.

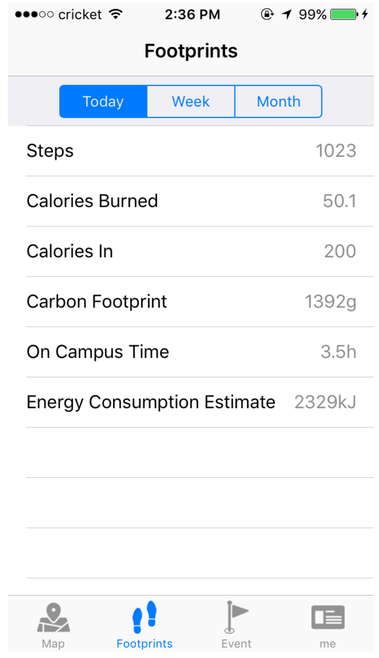
In order to bring awareness to the carbon footprint in personal level and estimate the GHGs emission more accurately for climate change study, we need to crowd source people's daily activities and extract useful information.

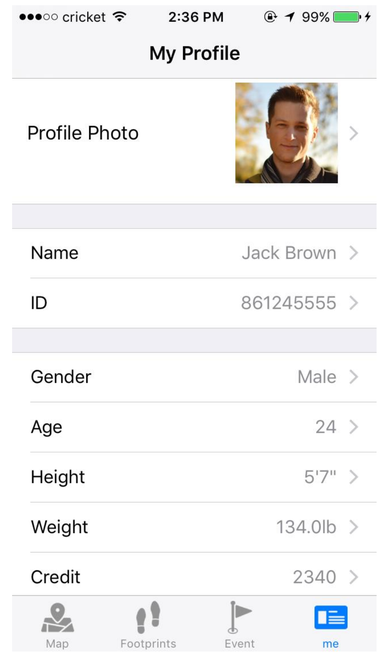
This project is proposed to develop a platform doing this job. It is called **Carbon Footprint Tracking Network (CFTN).**

Materials and Methods

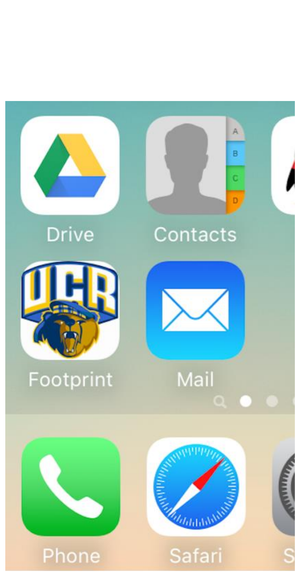
The CFTN consists of **two parts, an intelligent terminal application and a cloud computing server**. Individuals may share their locations, food consumption, commute distance, and other daily activities via the CFTN application on their smartphones. Based on these information, distributed program will calculate each user's carbon footprint. And meanwhile, information will be transmitted to the server where the overall carbons emission level will be estimated. According to each individual's activities, customized tips will be fed back to them, suggesting their behaviors in order to achieve their own goals of cutting down carbon footprints. We can also visualize the CO2 concentration diagram dynamically to arise awareness of saving energy and reduce emissions.

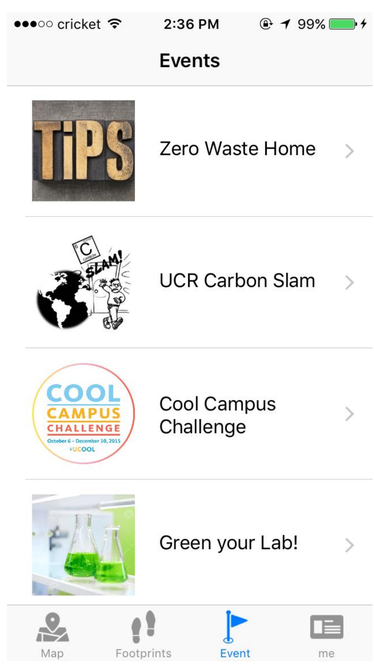






Results and Outcomes



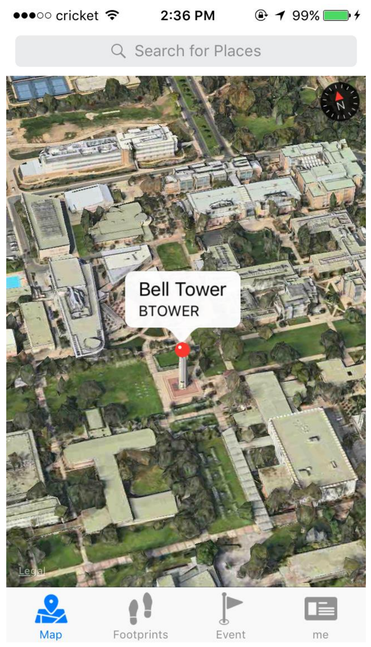


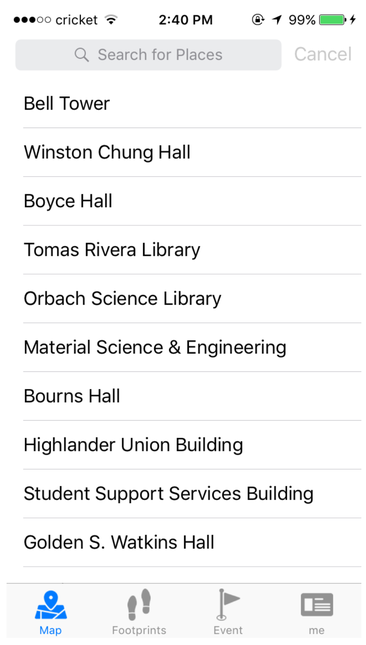
Conclusions

- The CFTN is a good system for data collection and storage for research and monitor purpose.
- It also a well-defined platform for helping people strive in the right direction to achieve carbon neutrality on UCR campus.

Project Goals

- Develop a platform that people can share their daily activities and consumptions.
  - Smartphone App
  - Cloud Computing Server
- Build a dynamic green house gases emission estimation model in individual level. Estimate the CO_2 emission level.
- Integrate local information (campus navigation, notification, etc.) in the platform helping people save time and reduce emission.
- Involve social functions to the platform
  - Share CO_2 footprint reduction
  - Receive environmental friendly tips
  - Earn credits





Future Goals

- Complete the GHGs emission estimation functions.
- Build connections with UCR campus stores and let users use their credits as coupons on campus.
- Conclude a report of the CO_2 emission level and analysis the contribution of CFTN.
- Contact with other UC campuses, listen to their suggestions, help them build their local CFTN.

References

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