

**Team:** Curtis McHone, Shayne Sellner, Richard McCue, Jonathan Bloom, Justin Stouffer

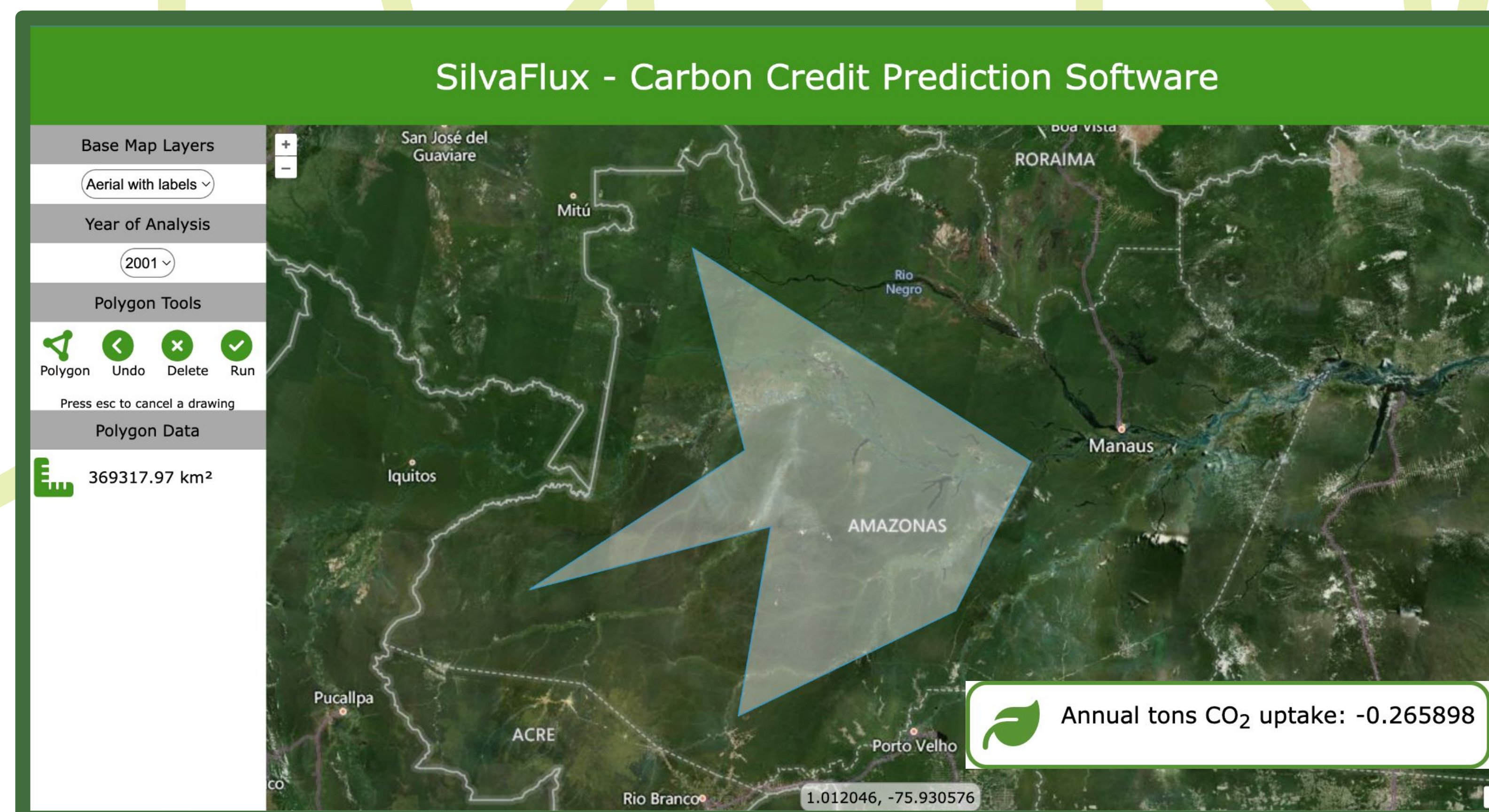
**Client:** Dr. Alexander (Allie) Shenkin, Assistant Research Professor, NAU

Team Mentor:  
Vahid Nikoonejad Fard

## What is the Problem?

- Investing in reforestation and carbon credit projects is not profitable enough
- Reforestation developers are facing numerous substantial problems:
  - Hefty upfront investment costs, \$1500/hectare
  - Long return times on investment, ~7-10 years
  - Highly unregulated carbon market
- Our project sponsor Allie Shenkin has discovered a new climate cooling process that increases the amount of carbon credits one can sell by up to 30%
- Allie's current prototype that supports this new discovery is slow and inefficient; our project aims to make this process faster and more user friendly

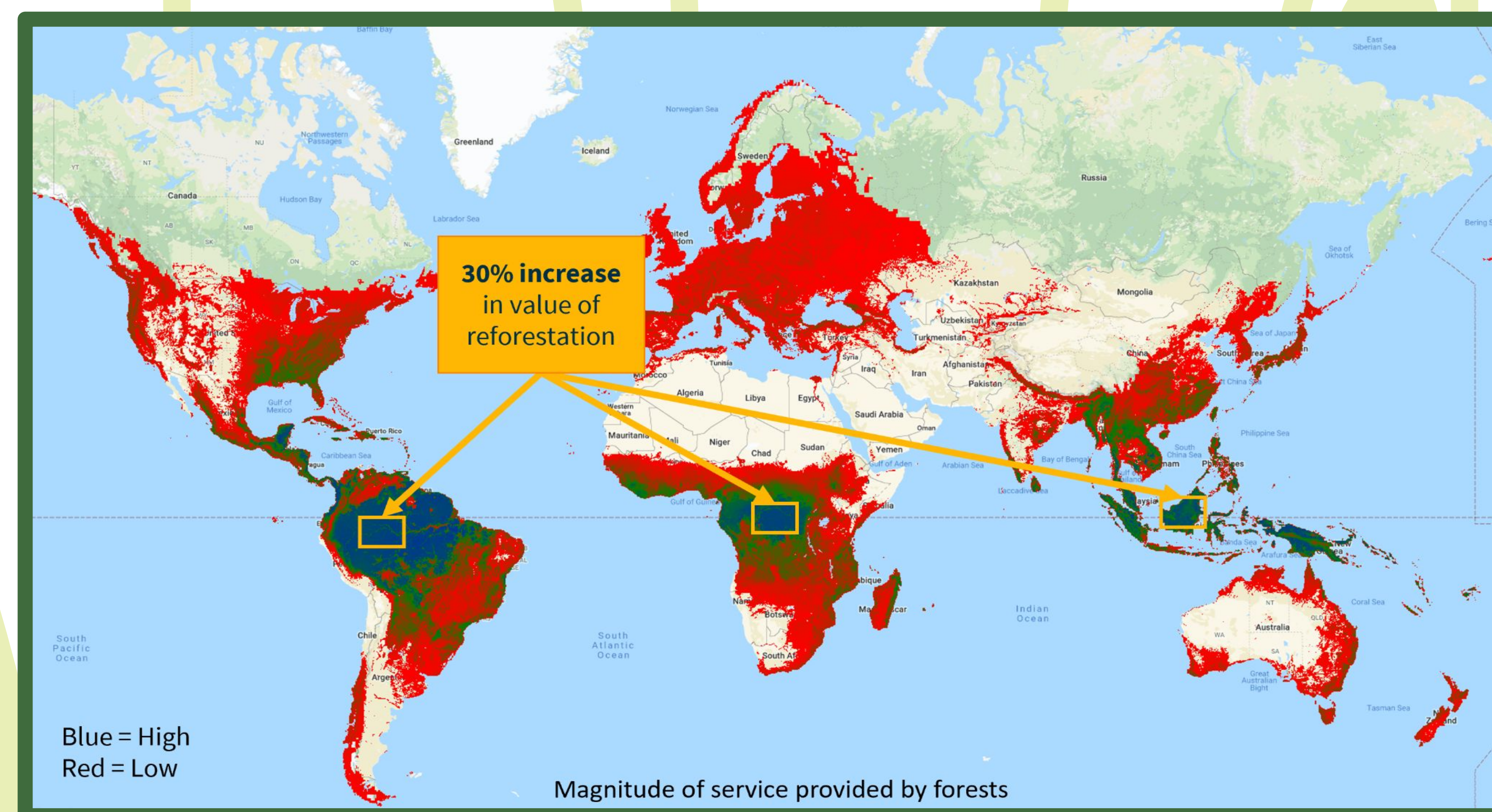
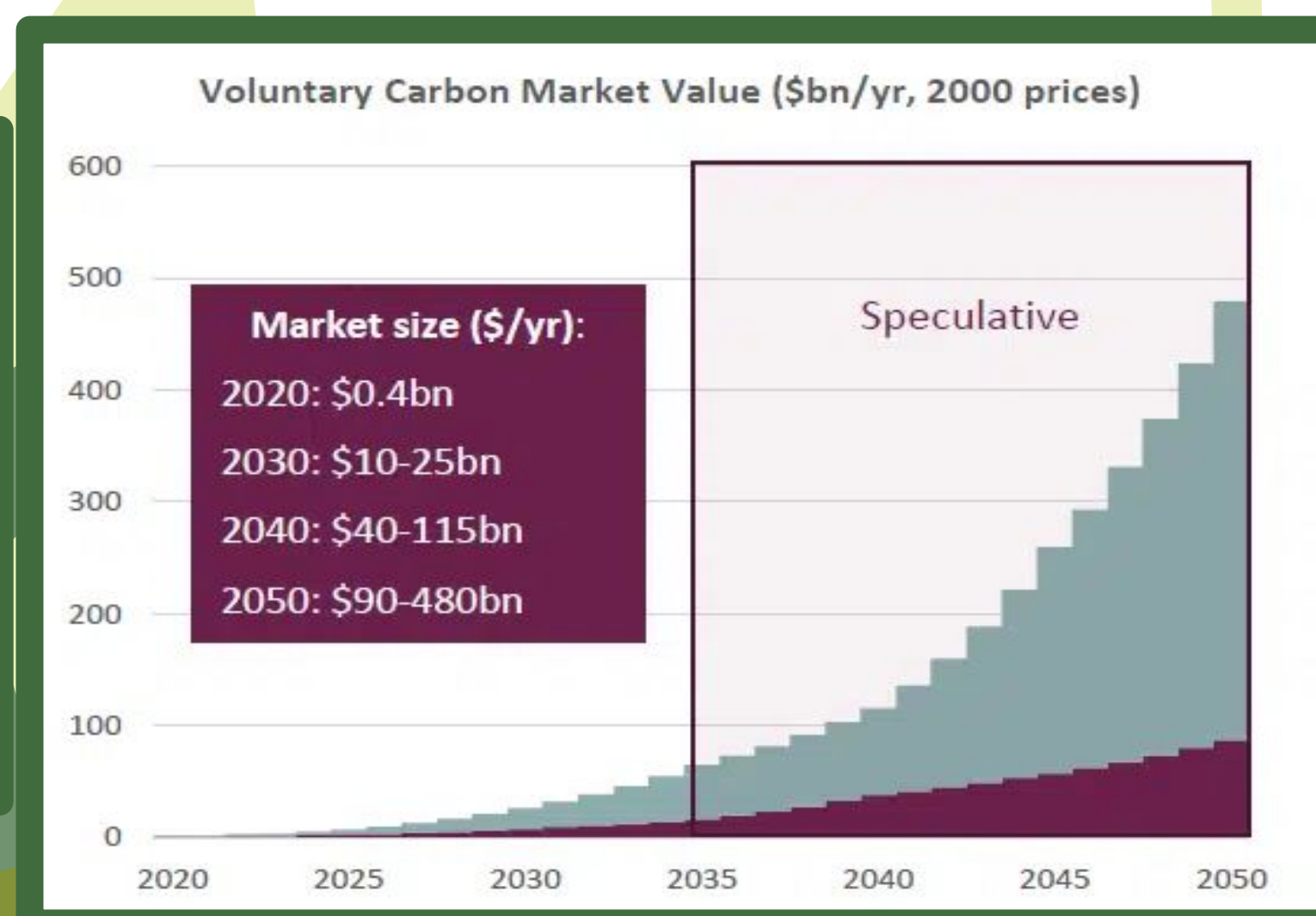
## Our Proposed Solution



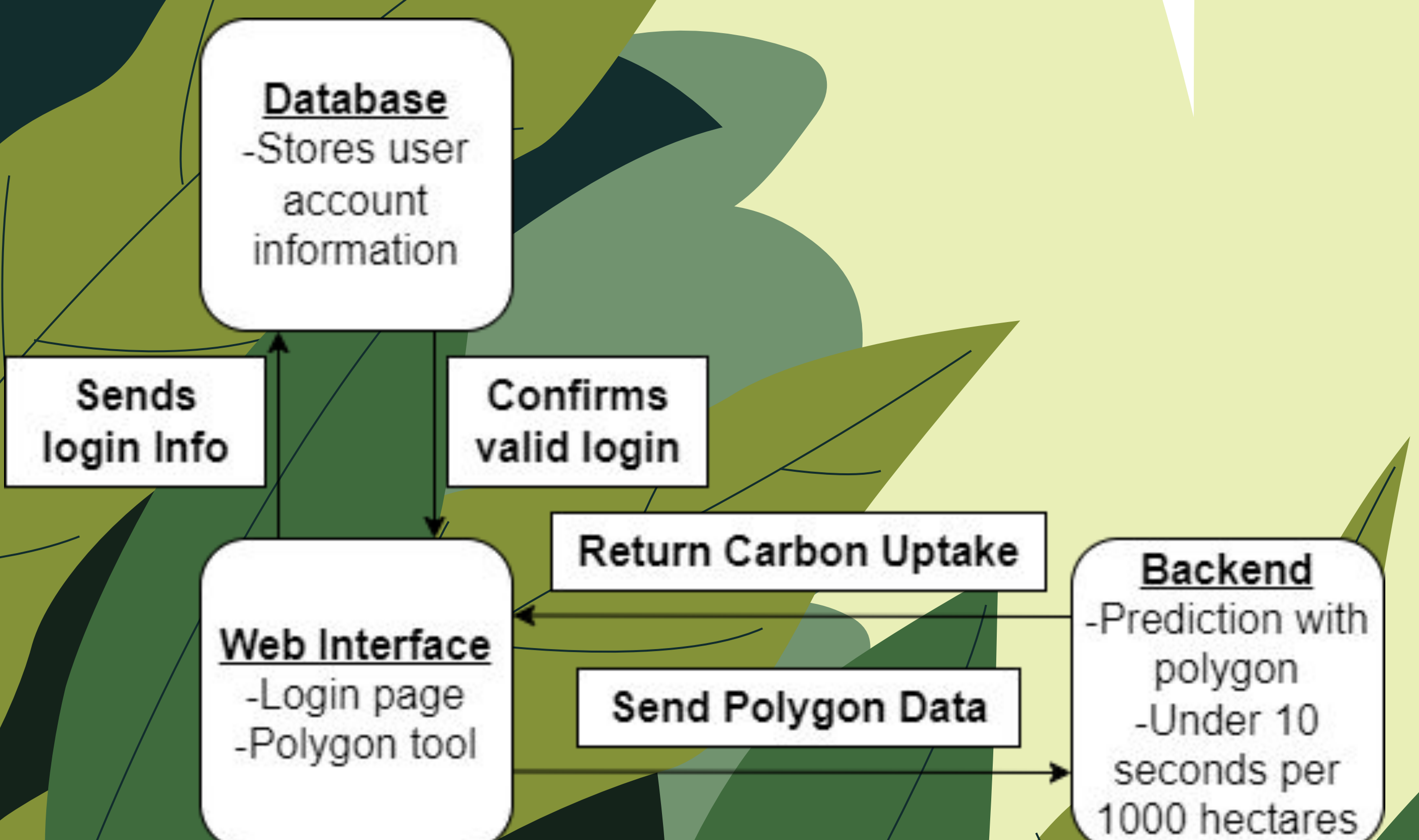
## Outcomes

- Faster runtime than the prototype
- More extendable than the prototype
- User friendly GUI
- Potential to revolutionize the carbon market by introducing a way to accurately predict CO<sub>2</sub> uptake
- Increase profitability of carbon credits

## Technologies



## Architecture



## Solution Overview

### Front End

- Django Web framework
- OpenLayers map interface with Bing maps baselayers
- Polygon tools built into OpenLayers
- Talks with database to verify login information

### Back End

- Precomputed rasters 2014-2021
- CO<sub>2</sub> uptake python prediction script
- PostgreSQL database

### Cloud-based Server

- AWS

