

# ArboretumID

## An AR Guide to The Arboretum at Penn State



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# App Definition Statement

## DESCRIPTION

ArborIdentifier is an app that enhances the Penn State Arboretum experience through AR and ML. Using the iPhone's camera, ArborIdentifier scans the placard in front of any plant, and delivers rich details and descriptions about it. The app allows you to save plants to your collection, and even share your favorite snaps with friends!

ArborIdentifier provides Penn State students, alumni, and visitors of any age the opportunity to explore the incredible collections of plants, flowers, and trees at the Penn State Arboretum in a whole new way!

## KEY FEATURES

- *Users can learn about all the different plants and trees at the Arboretum, even if they're away from campus*
- *By taking a picture of the placard in front of any plant, visitors can learn about the plant's origins, description, fun facts, conditions for growth, and so much more.*
- *Visitors can save their favorite finds to their collection to learn more later, or share them with friends, all from within the app.*

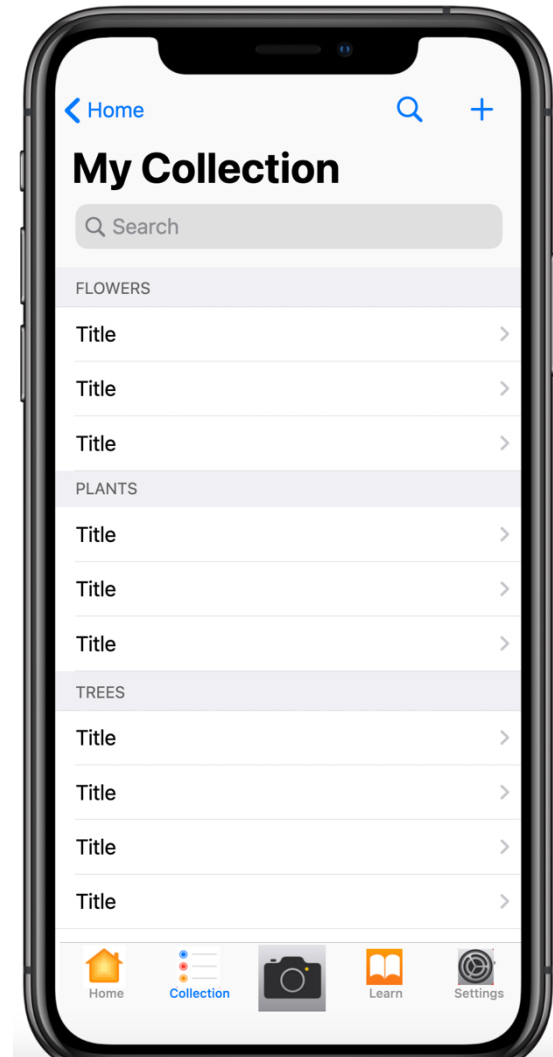
## TARGET AUDIENCE

- *ArboretumID is targeted at users of all ages who want to explore the incredible collection at the Penn State Arboretum*

# App Mockups



Home Page



Collection Page

# App Mockups



**TAKE PHOTO**



**SCAN PLACARD**



# User Interactions

## **NAVIGATION FLOW**

Users begin using ArboretumID by starting at the Home page, where they'll get information about the weather in State College, a featured plant of the day.

From there, users can navigate to their collection of saved plants, grouped by flower, plant, tree (potentially further groupings by Arboretum Collection they fall under).

The main focus of the app is to scan photos of plants and placards to learn more about them, taking a picture of the placard in front of any plant, visitors learn about the plant's origins, description, fun facts, conditions for growth, and more.

## **PERSISTENCE/LOGIN**

Persistence is handled on the local device through Core Data, with information about the user's collection of saved plants from the Arboretum will be saved locally.

Additionally, users will have the option to log in to ArboretumID to save their collections on the cloud. Logging in will be handled only using "Sign In with Apple" in order to reduce overhead and simplify the authentication flow for users to persist their saved collection from the Arboretum.

# Timeline

	DATE	FEATURES
<b>Week 1</b>	Nov 1-7	Begin sourcing data, initializing source code. Start data model.
<b>Week 2</b>	Nov 8-14	Finalize data collection, pull subset of data, build ML model in MLKit, do validation testing against training data, new data.
<b>Week 3</b>	Nov 15-21	Pull complete dataset into application, prepare beta version
<b>Week 4</b>	Nov 22-28	Continue building upon beta, add login functionality.
<b>Week 5</b>	Nov 29-Dec 5	Try to add functionality, training models to recognize plants
<b>Week 6</b>	Dec 6-12	Submit finalized version of application after final touches



# Technologies & Frameworks

**SwiftUI**

**Core Data**

**MLKit**

# Data Sources

## SOURCES

1. The Arboretum's current Collection information sourced from <https://arboretum.psu.edu/gardens/living-plant-collections/>
2. Plant location information gathered from The Arboretum at Penn State's PlantFinder ArcGIS web application <https://datacommons.maps.arcgis.com/apps/webappviewer/index.html?id=88d9267530dc48db8635703130bb084e>
3. Will reach out to director for The Arboretum for raw data access for each plant on record in the collection.
4. Manual collection of each plant's placard on display, will take various photos of the plant itself.