

Deliverable 1

Document Title: Deliverable 1

Team Name: Smart Sprout

Project Name: Smart Home-Garden System

Team Number: Group 9

Team Member & Student ID:

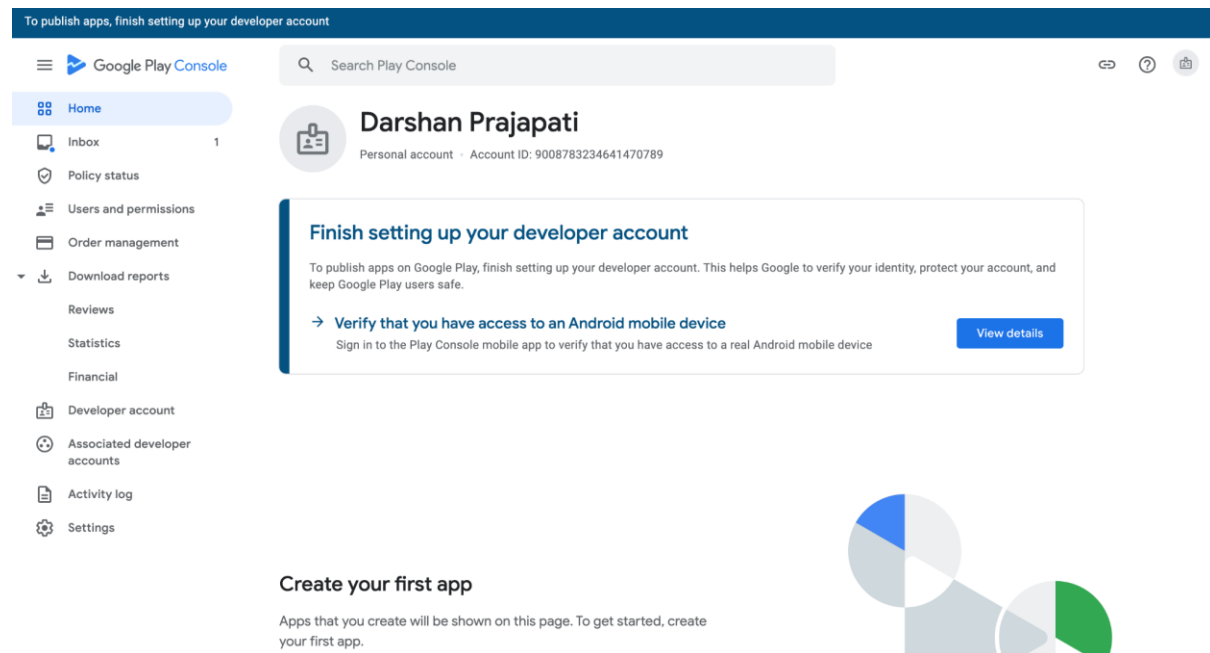
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|--------------------------|-----------|
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| • Birava Prajapati | n01579924 |
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Table of content

Table of content	2
Google Developers Account.....	3
Github Repo.....	3
Github Invitation for professor	3
Project background and description	4
Project scope	5
Describe.....	5
Project layout	5
Theme: Automated Plant Care.....	7
Team contract.....	8

Google Developers Account

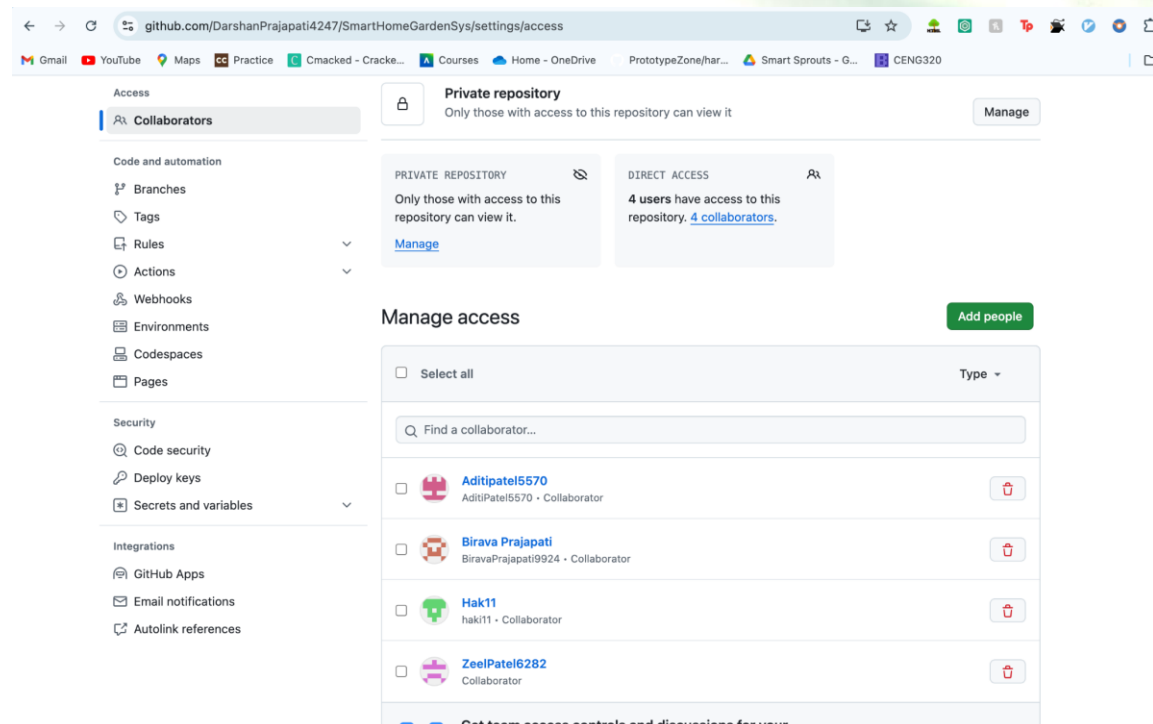
We already have created a Google Developers account. Below is a screenshot:



GitHub Repo

Smart Sprout Github-Repo

Github Invitation for professor



PROJECT BACKGROUND AND DESCRIPTION

Project Objective:

The Smart Home-Garden system automates plant care, enabling users to monitor and manage their garden through a mobile app. This system allows for remote control of functions like watering, customizable schedules, and real-time updates, ensuring that plants thrive with minimal effort. Designed for user-friendliness, it promotes efficient and sustainable gardening.

1. Describe the project goals and final vision:

The primary goal is to develop an intuitive system integrating various sensors to monitor environmental conditions and automate plant care. The final vision is a seamless mobile application that allows users to care for their gardens efficiently, even when they are away.

2. Describe the software aspect and hardware:

Hardware: The system employs the Digikey LTR390 UV Light Sensor to monitor light levels, the SparkFun Qwiic Soil Moisture Sensor to gauge soil moisture, and the Grove Water Level Sensor Board to track water levels.

Software: The application will be developed using a robust framework for real-time data collection and user interaction. It will interface with a cloud database to store user settings and sensor data.

3. Describe the screen flows:

The mobile app will feature a user-friendly interface with navigation to monitor sensor data, set schedules, and receive alerts. The main screens will include:

- Dashboard: Overview of garden status
- Sensor Data: Detailed readings from each sensor
- Settings: Customize schedules and notifications

4. How you Incorporate the feedback provided through the interview

Incorporating Feedback:

Feedback from interviews will be integrated into the design to enhance user experience. Key aspects such as ease of navigation and alert customization will be prioritized based on user suggestions.

5. **Demonstrate how you are planning to read/write from the DB which is hosted on the cloud.**

Cloud Database Integration:

The application will read from and write to a cloud-hosted database, allowing users to store preferences, schedules, and historical sensor data. This will be accomplished through RESTful APIs to ensure secure and efficient data transactions.

PROJECT SCOPE

The technical scope encompasses:

- Integration of the hardware components with the mobile application.
- Implementation of a cloud database for data storage and retrieval.
- Completion criteria include successful testing of all functionalities, user acceptance testing, and deployment of the application.

DESCRIBE

Software and Hardware Integration

To integrate the software with the hardware components, a modular architecture will be implemented. Each sensor will communicate with the application through a dedicated API, ensuring real-time data flow and enabling automated actions based on sensor readings.

PROJECT LAYOUT

Navigation Implementation:

The project will utilize the Bottom Navigation for primary navigation due to its space-efficient design, allowing users to access various sections of the app easily.

How to Use:

- **Structure:** Bottom navigation should contain 3-5 primary destinations. Each icon represents a distinct feature (e.g., Dashboard, Control, Schedules).
- **Behaviour:** It remains fixed at the bottom of the screen, allowing quick access to key app sections.
- **Indication:** Highlight the selected tab with a color change or icon animation.

Why Use:

- **Efficiency:** Easily accessible for users, especially on mobile devices where the bottom is within thumb reach.
- **Clarity:** Clear and immediate access to main features without navigating deep into menus.
- **Consistency:** A consistent, fixed location for navigation ensures the user isn't confused or lost within the app.

Use Cases:

- **Instagram:** Bottom navigation provides quick access to Feed, Search, Reels, Shop, and Profile.
- **Spotify:** Uses bottom navigation for Home, Search, and Library, making switching between primary functions fast.

Bottom Navigation vs. Other Options:

- **Bottom Navigation vs. Tabs:** Bottom navigation is better for switching between distinct sections. Tabs are best for closely related content within the same section (e.g., Instagram's Feed/Explore).
- **Bottom Navigation vs. Navigation Drawer:** Bottom navigation provides quicker access to core features, while drawers are used for secondary functions (e.g., settings in Gmail).

Conclusion:

Bottom navigation is ideal for apps like **Smart Home-Garden**, where users need fast access to key sections such as plant monitoring, control, and scheduling.

Theme: Automated Plant Care

1. Epic 1: User Engagement

- **Story 1:** Users receive timely notifications for plant care.
 - **Task 1:** Develop notification system
 - **Task 2:** Create user preferences for notifications
 - **Task 3:** Implement testing for notification delivery
- **Story 2:** Users can view real-time weather forecasts.
 - **Task 1:** Integrate weather API
 - **Task 2:** Design a weather display interface
 - **Task 3:** Test accuracy and update frequency
- **Story 3:** Users can track plant growth over time.
 - **Task 1:** Develop a growth-tracking feature
 - **Task 2:** Create a visual graph of plant health
 - **Task 3:** Implement user feedback for improvement

2. Epic 2: Automation Features

- **Story 1:** Users can set customizable watering schedules.
 - **Task 1:** Develop scheduling interface
 - **Task 2:** Implement backend logic for scheduling
 - **Task 3:** Test functionality with sensors
- **Story 2:** Users can receive UV light readings and recommendations.
 - **Task 1:** Integrate UV sensor data
 - **Task 2:** Develop a recommendation algorithm
 - **Task 3:** Create a user interface for displaying UV levels
- **Story 3:** Users can adjust settings remotely.
 - **Task 1:** Build remote control functionality
 - **Task 2:** Ensure data synchronization with the cloud
 - **Task 3:** Test remote access features

Team Contract

CENG-322 TEAM PROJECT

Team Name: Smart Sprout

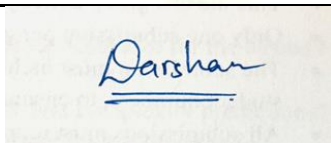
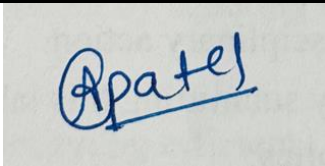
Team Number: Group 9



Project Name: Smart Home-Garden System

Please negotiate, sign, scan and include as the first section in your Deliverable 1.

Please note that if cheating is discovered in a group assignment each member will be charged with a cheating offense regardless of their involvement in the offense. Each member will receive the appropriate sanction based on their individual academic honesty history.

Please ensure that you understand the importance of academic honesty. Each member of the group is responsible to ensure the academic integrity of all of the submitted work, not just their own part. Placing your name on a submission indicates that you take responsibility for its content.

Team Member Names (Please Print)	Signatures	Student ID	Github Id
Project Leader: Darshankumar Prajapati		n01574247	DarshanPrajapati4247
Aditi Patel		n01525570	AditiPatel5570

Birava Prajapati		n01579924	BiravaPrajapati9924
Zeel Patel		n01526282	ZeelPatel6282

For further information read Academic Honesty Policy on <https://humber.ca/legal-and-risk-management/policies/search-by-students.html>.

By signing this contract, we acknowledge having read the Humber Academic Honesty Policy as per the link below.

<https://academic-regulations.humber.ca/2018-2019/17.0-ACADEMIC-MISCONDUCT>

Responsibilities of the Project Leader include:

- Assigning tasks to other team members, including self, in a fair and equitable manner.
- Ensuring work is completed with accuracy, completeness and timeliness.
- Planning for task completion to ensure timelines are met
- Any other duties as deemed necessary for project completion

What we will do if . . .

Scenario	Accepted initials	We agree to do the following
Team member does not deliver component on time due to severe illness or extreme personal problem	a	a) Team absorbs workload temporarily or the task will be assigned to someone else. d) Other:

Team member cannot deliver component on time due to lack of ability	b	<p>a) Team reassigns component __</p> <p>b) Team helps member __</p> <p>c) Team "fires" team member by not permitting his/her name on submission __</p> <p>d) Other:</p>
Team member does not deliver component on time due to lack of effort	c	<p>a) Team absorbs workload __</p> <p>b) Team "fires" team member by not permitting his/her name on submission __</p> <p>c) Other: The warning will be given to that person.</p>
Team member does not attend team meeting	a	<p>a) Team proceeds without him/her and will assign work to the absent member __</p> <p>b) Team doesn't proceed and records team member's absence __</p> <p>c) Team proceeds for that meeting but "fires" member after __ occurrences __</p>

An unforeseen constraint occurs after the deliverable has been allocated and scheduled (a surprise test or assignment)	a	<p>a) Team meets and reschedules deliverable ____</p> <p>b) Team will cope with constraint ____</p> <p>c) Other:</p>
Team cannot achieve consensus leaving one member feeling "railroaded", "ignored", or "frustrated" with a decision which affects all parties	a	<p>a) Team agrees to abide by majority vote ____</p> <p>b) Team flips coin ____</p> <p>c) Other:</p>
Team members do not share expectations for grade desired	b	<p>a) Team will elect one person as "standards-bearer" who has the right to ask that work be redone ____</p> <p>b) Team votes on each submission's quality ____</p> <p>c) Team will ask for individual marking and will identify sections by author ____</p> <p>d) Other:</p>

Team member behaves in an unprofessional manner by being rude or uncooperative	c	<p>a) Team attempts to resolve the issue by airing the problem at team meeting __</p> <p>b) Team ignores behaviour __</p> <p>c) Team agrees to avoid use of all vocabulary inappropriate to the business setting __</p> <p>d) Team fires the team member.</p>
Team member assumes or requests that his/her name be signed to a submission but has not participated in production of the deliverable	b	<p>a) Team agrees that this is cheating and is unethical __</p> <p>b) Friends are friends and should help each other __</p> <p>c) That person name will not be put on the submission._</p>
There is a dominant team member who is content to make all decisions on the team's behalf leaving some team members feeling like subordinates rather than equal members	a	<p>a) Team will actively solicit consensus on all decisions which affect project direction by asking for each member's decision and vote __</p> <p>b) Team will express subordination feelings and attempt to resolve issue __</p> <p>c) Other:</p>

Team has a member who refuses to participate in decision making but complains to others that s/he wasn't consulted	C	<p>a) Team forces decision sharing by routinely voting on all issues ____</p> <p>b) Team routinely checks with each other about perceived roles ____</p> <p>c) Team discusses the matter at team meeting ____</p>
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