



EcoGrow Smart Pot

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INTRODUCTION

Urban environments in Malaysia, particularly in high-density areas, face challenges with limited space and increasingly busy lifestyles. These factors make it difficult for residents to maintain healthy indoor plants, essential for improving indoor air quality and promoting well being. Additionally, sustainable water use is becoming a priority in Malaysia, where water conservation efforts are critical. There is a growing need for solutions that support indoor plant growth with minimal maintenance and efficient use of resources. Hence, this project is to design a maintenance free indoor smart farming pot that can automatically manage plant care, including watering and lighting. This project is innovated to uphold Sustainable Development Goal 11 (Sustainable cities and communities) and 13 (Climate action).

PROBLEM STATEMENT

- Urban residents often face challenges in maintaining indoor plants due to limited space, busy lifestyles, and the need for regular plant care.
- Traditional indoor flower pots require frequent watering and monitoring, which can lead to over or under-watering, negatively impacting plant health.
- Additionally, many conventional growing mediums are not environmentally sustainable.

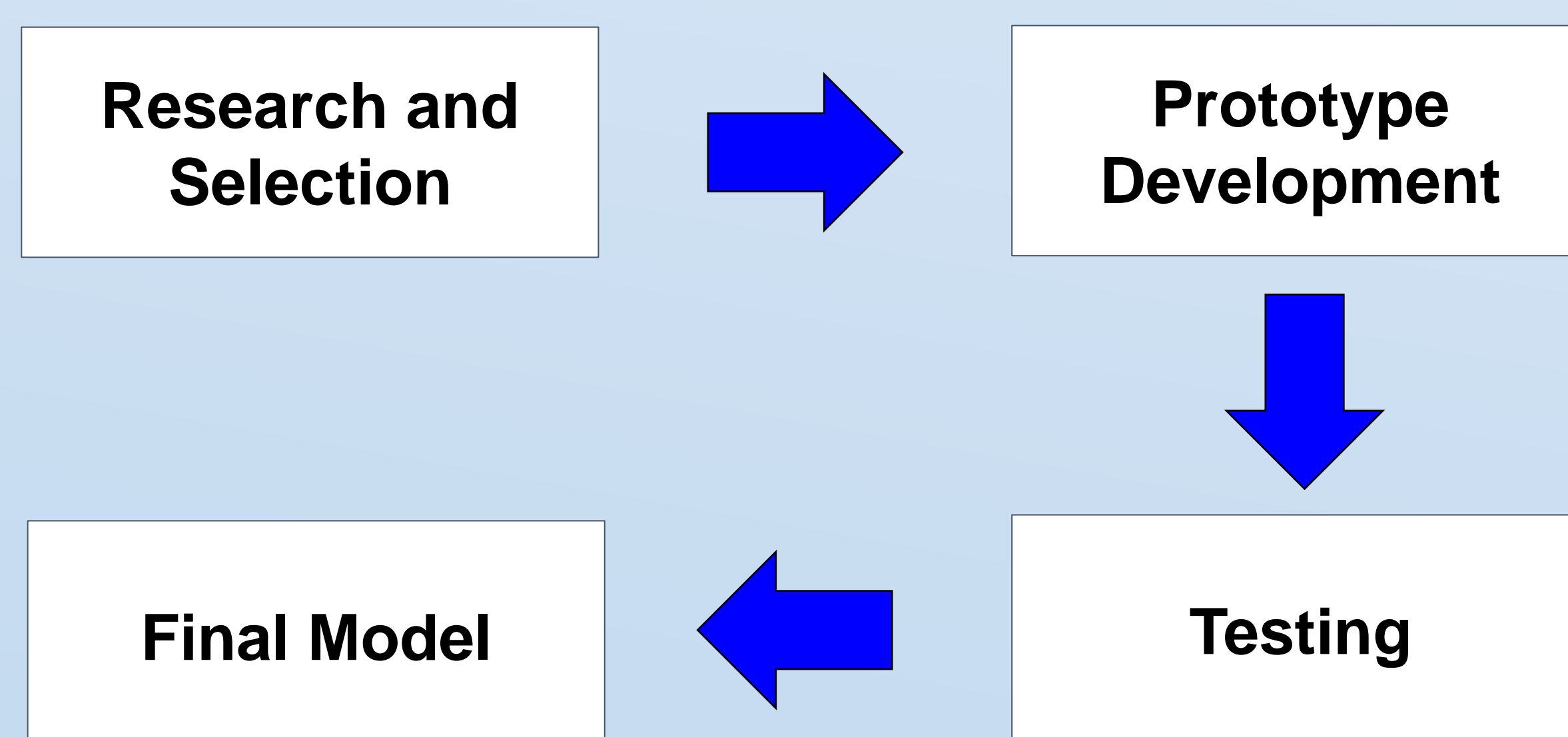
OBJECTIVES

- This project aims to develop a smart, maintenance-free indoor flower pot system that uses cocopeat, an eco-friendly growing medium, combined with a water sensor and grow light.

PROTOTYPE



METHODOLOGY



DISCUSSION

- Cocopeat retains water more efficiently than soil, reducing the frequency of watering.
- A water sensor is integrated into the pot to monitor moisture levels in the cocopeat. The system automatically waters the plant when moisture levels drop, preventing over- or under-watering, and ensuring optimal water use
- The grow light provides essential light for photosynthesis in indoor spaces with limited natural sunlight.

APPLICABILITY AND USABILITY

- ✓ highly applicable in urban areas where space is limited and natural light may be insufficient.
- ✓ The smart pot can also be marketed to offices, shopping malls, and educational institutions, where it can enhance indoor farming
- ✓ Affordable and the sensors are reusable

CONCLUSION

- **EcoGrow Smart Pot** is a unique, affordable and convenient system that promotes indoor farming in Malaysia.
- The automated watering and grow light minimizes human intervention and ensures healthy plant growth.

REFERENCES

- Gnauer, C., Pichler, H., Tauber, M., Schmittner, C., Christl, K., Knapitsch, J., & Parapatits, M. (2019). Towards a secure and self-adapting smart indoor farming framework. *e & i Elektrotechnik und Informationstechnik*, 136(7), 341-344.
- Gnauer, C., Pichler, H., Schmittner, C., Tauber, M., Christl, K., Knapitsch, J., & Parapatits, M. (2020). A recommendation for suitable technologies for an indoor farming framework. *Elektrotech. Informationstechnik*, 137(7), 370-374.
- Kumarasinghe, H. K. M. S., Subasinghe, S., & Ransimala, D. (2016). Effect of coco peat particle size for the optimum growth of nursery plant of greenhouse vegetables. *Tropical Agricultural Research and Extension*, 18(1).

NOVELTY & UNIQUENESS

- The uniqueness of this project lies in its integration of eco-friendly materials, like cocopeat, with modern technology (water sensor and grow light) to create a low-maintenance, sustainable indoor gardening solution.
- While there are automated plant care systems available, this project stands out by using locally sourced cocopeat, promoting the use of renewable resources that support Malaysia's agricultural sector and reduce dependence on imported goods.

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