CEN492/493 - Project Proposal

# Adviser's Name

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| Abdulwadood Abdulwaheed |

# Project Title

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| Controlled Greenhouse |

# Number of Students

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| --- |
| 3 |

# Prerequisites

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# Abstract

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| Food security is one of the main concerns of any modern society. With the growing population in Saudi Arabia, the amount of food consumption is increasing. Due to the desert climate, agriculture is difficult to establish and expensive to maintain. This project aims to provide a fully automated farm within a controlled environment.  Plants will be grown in a controlled environment in a model greenhouse where the moisture, heat, light, and pH sensors will monitor the state of the plant. The growth of the plant will be monitored and a deep learning algorithm will determine the readiness for harvest.  A robotic arm will be used to sow the seeds and harvest the plant when ready. If time permits, the model greenhouse will be remotely monitored and controlled over the internet. The students will be required to design and implement the overall system. |

# Required Equipment and/or Software

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| Matlab  Laptop  Sensors  Microcontrollers and development boards  Robotic arm |

# Phase 1: The work to be completed in CEN492

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| Introduce different sensors and their control  Design and build the structure of the model greenhouse  Report writing |

# Phase 2: The work to be completed in CEN493

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| Use machine learning to monitor the plant growth  Implement sowing and harvesting using a robotic arm  Final report writing |

# Estimated Budget

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| 10,000 SAR |

# Multidisciplinary related[[1]](#footnote-1)

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| The students will work in the fields of machine learning and robotics. |

1. According to ABET Student Outcome (d), Students need to demonstrate their ability to function in multidisciplinary teams. Hence, supervisors are required to indicate above key points in response to the outcome statement: (d). an ability to function on multidisciplinary teams. [↑](#footnote-ref-1)