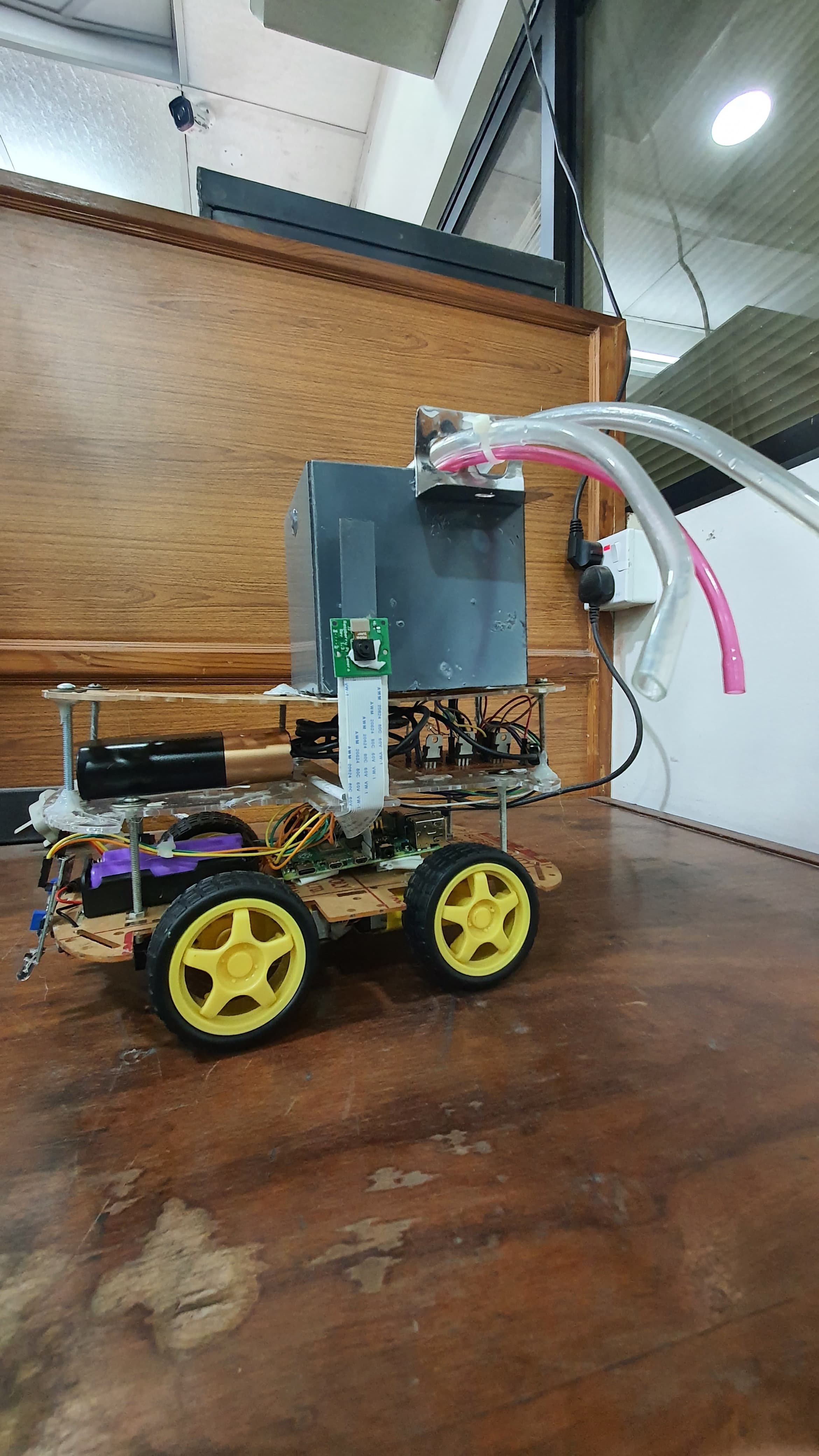
**Cotton Disease Detection and Its Cure Using Machine Learning**

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| **Group Members** | **Roll. No** | **Name** | **Batch** | **Dept** | **Campus** |
|  | 1. 20L-1456 2. 20L-1478 3. 20L-1492 | 1. Muhammad Ahmed Ahsan 2. Muhammad Ahsan Javed 3. Hiba Naseer | 2020-2024  2020-2024  2020-2024 | Electrical  Engineering | Lahore |
| **Supervisor(s)** | **Sir Hamza Yousuf** | | | | |
| **Summary:** | Our project focuses on detecting Cotton plant diseases and offering real-time treatment (cure) recommendations using Machine Learning. We use Python, TensorFlow, and OpenCV for image processing and model training, achieving high accuracy with neural networks. A web app, developed using the MERN Stack, interfaces with the system. A Raspberry Pi powers an unmanned ground vehicle (UGV) to capture images in the field. This tool helps farmers detect diseases early, increasing yield and reducing economic losses by providing timely and reliable diagnoses and prescriptions. | | | | |
| **Introduction** | Our project leverages Machine Learning to detect Cotton plant diseases and provide real-time cure recommendations using a Raspberry Pi-powered UGV and a web app. | | | | |
| **Problem Statement** | Farmers face significant economic losses due to the late detection of Cotton plant diseases. An efficient, real-time detection system is essential to identify and treat these diseases promptly. | | | | |
| **Objective** | The objective of this project is to develop a Machine Learning model that accurately detects various diseases in Cotton plants and provides real-time prescriptions for their cure, thereby aiding farmers in early disease detection and reducing economic losses. | | | | |
| **Result(s) & Conclusions** | **Results**  Achieving 96% accuracy, our model effectively detects five Cotton plant diseases, showcasing its precision in diagnosis.  **Conclusion**  The project delivers a tool for early disease detection, utilizing advanced Machine-Learning methods. This system promises timely diagnoses, fostering higher crop yields and economic savings for farmers. | | | | |
| **Future Directions** | Implementing additional Cotton plant diseases and symptoms, upgrading UGV with advanced sensors, autonomous navigation, and integrating IoT solutions for real-time monitoring, the system aims to optimize real-time processing and gather feedback through field trials for enhanced practical utility. | | | | |

**Project Output (Product or Service)**

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