

Senior Project Ideas

By: Lucas Butler

August 31, 2023

1. Wireless Electromyogram Heart Rate Sensor

Monitoring heart rate is essential for various health industry scenarios, including surgery, sports training, and disease monitoring. Wireless EMG can be a useful device in environments where wired EMG signals are inconvenient or EMG is not currently feasible. Useful situations include physical activities like basketball or running and all stages of surgery from transferring the patient to different rooms, operation time, and monitoring recovery. The device could provide heart rate, temperature and possible other metrics. Customers would be consumer households, the healthcare industry, the sports industry, and even the military.

2. Plant Monitoring and Watering System

A PMW system that could monitor the moisture and nutrients of a plant, and automatically adjust and update based on plant health. The system could retain water and update you on the fill level, as well as replenish the plant according to desired specifications. Water supply could either be localized in a container, or supplied by a system. Various metrics could be gathered such as hydration of soil, temperature and humidity of the air, nutrients, and water storage level to give the user a well-rounded idea of their plant's health. Customers would be consumer households and all scales of industrial farms, where individual plant health monitoring could increase crop yield rates.

3. Automated Medication Dispenser

Tracking and sorting medication can be a difficult task. Oftentimes, people must manually count out each of their medications, remember to take them and figure out when they need to get more. A desirable system would store and track all medications added, dispense needed medication when prompted, or by schedule, and update the user when it's time to re-up. Customers of this would be consumer households, and medical settings, and would benefit from better organization and management of health supplements.