Sanaria Robot Background

- Need for a reliable Malaria vaccine coverage is urgent
- Sanaria Inc.’s malaria vaccine can improve malaria protection
- **Key step in vaccine production**: extraction of Sporozoite from salivary glands

**Project Goal**: Develop an autonomous mosquito microdissection system to automate process
  - Minimal operator intervention
  - High accuracy
  - High throughput

Current Manual Dissection Process

Under development: Automated Dissection Process
Sanaria Robot Call For Students

Upcoming Hardware Tasks

• Design and manufacture gland collection system
• Redesign and manufacture mosquito squeezing station
• Design for new actuation in subsystems

Needed 1-2 students with mechanical engineering background
• Skills: CAD, additive and subtractive manufacturing processes, mechatronics

Upcoming Software Tasks

• ROS integration of computer vision (CV) tasks
  • Integrate already implemented classical image processing (IP) and deep learning-based CV methods into dissection workflow
  • Review and improve already implemented CV methods in terms of efficacy and speed
  • Develop system to regularly evaluate CV methods based on existing image database
  • Maintain software and architecture documentation
  • Required: C++, Python, ROS, Git, knowledge of IP/CV concepts
  • Good to have: IP and DL-based CV coding experience, SQL

JOHNS HOPKINS
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SANARIA
MALARIA ERADICATION THROUGH VACCINATION