

PROJECT CLARA.

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INTRODUCTION

Project CLARA takes inspiration from the human brain. A baby during the initial days of its life knows nothing. The baby sees things around it and asks its parents for information about the object it has seen. Later, the baby learns the things gathered from its parents and grows up. CLARA's working coincides with the working of the human brain.

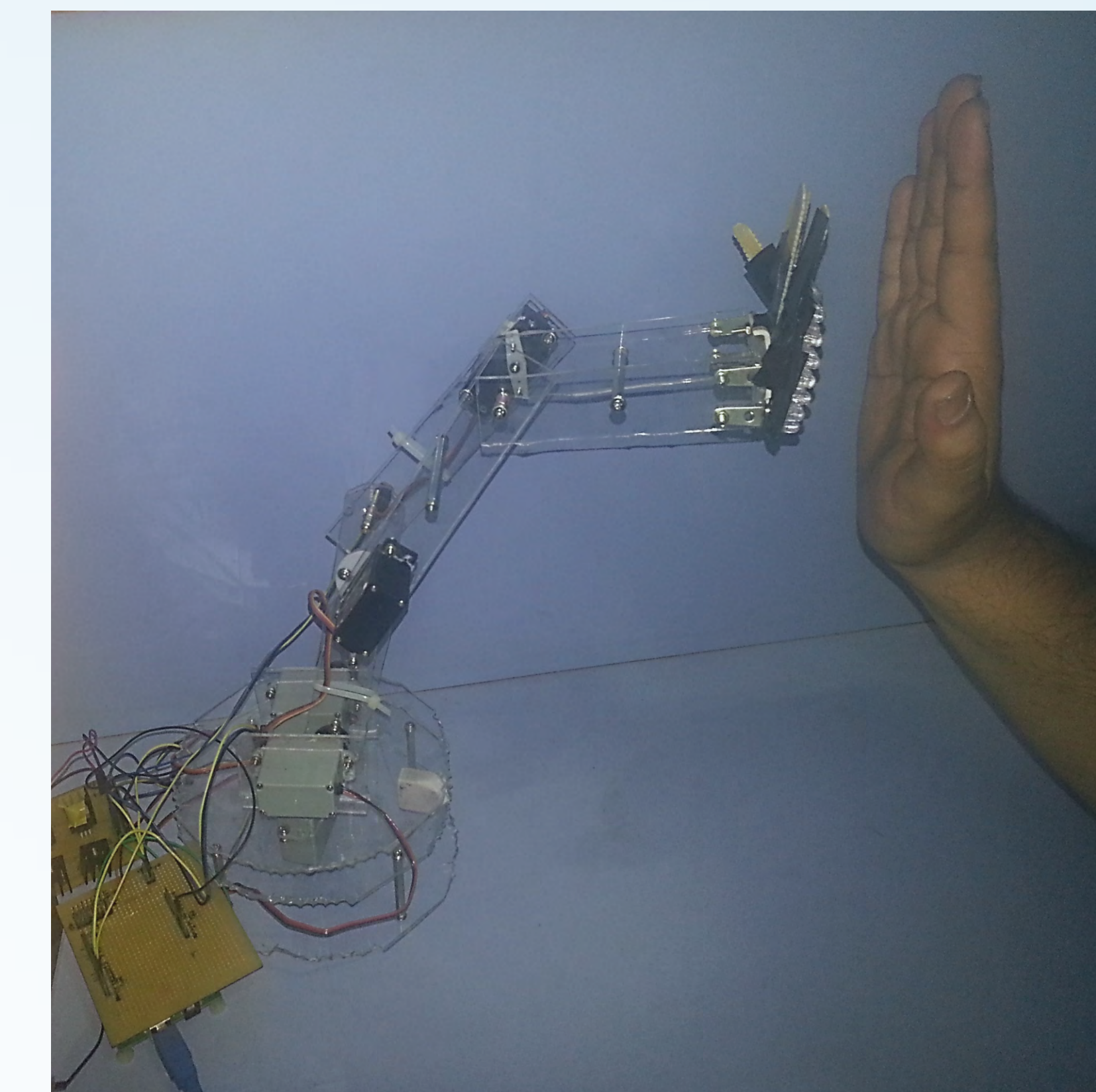
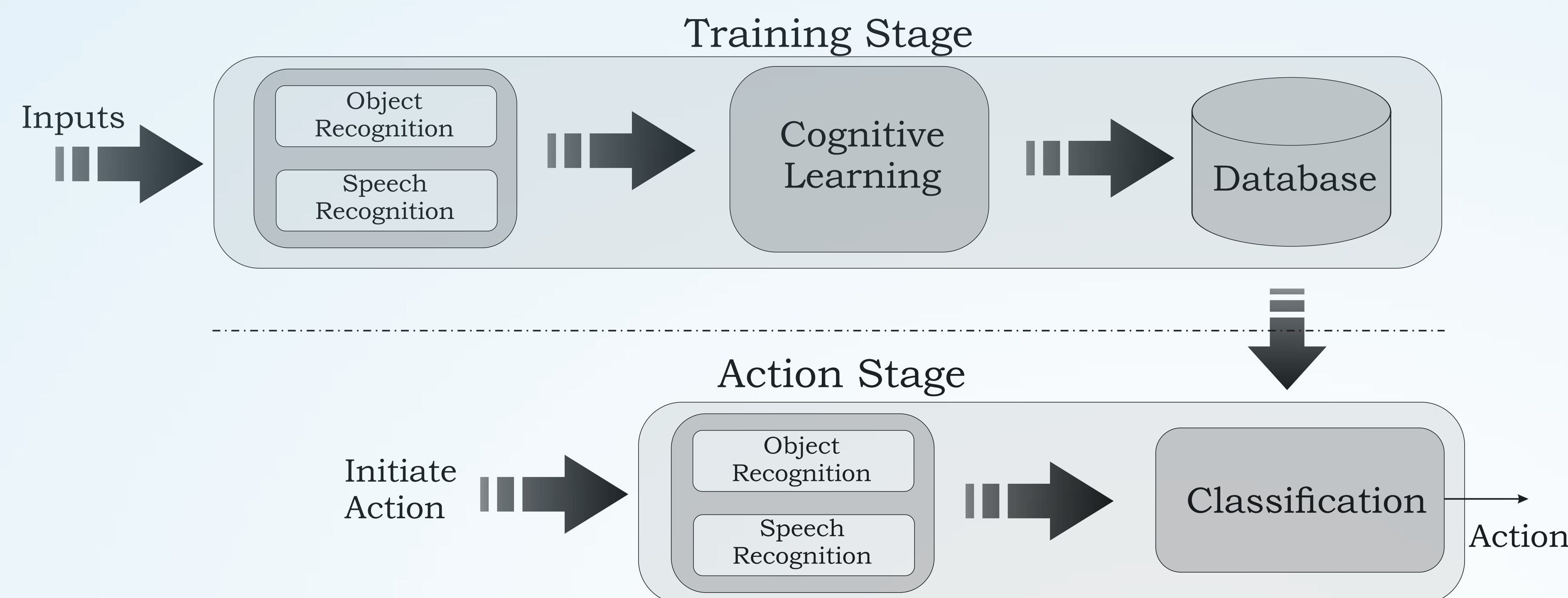
The key contributions of CLARA to the research community are:

i. A low cost Cognitive platform to aid low budget research and development in developing countries like India.

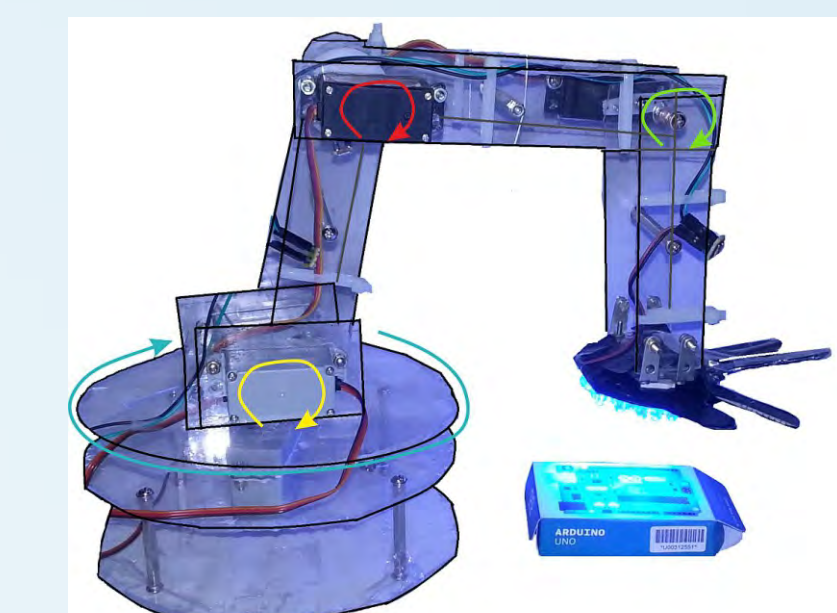
ii. Completely open source hardware design based on Arduino platform.

iii. Completely open source based low cost arm prototype.

iv. An efficiently working platform deploying object recognition based on SIFT and voice recognition based on power spectral density using Yule-Walker, both weaved together by a cognitive engine using a Situational reduction in dictionary, which substantially improves recognition rates.

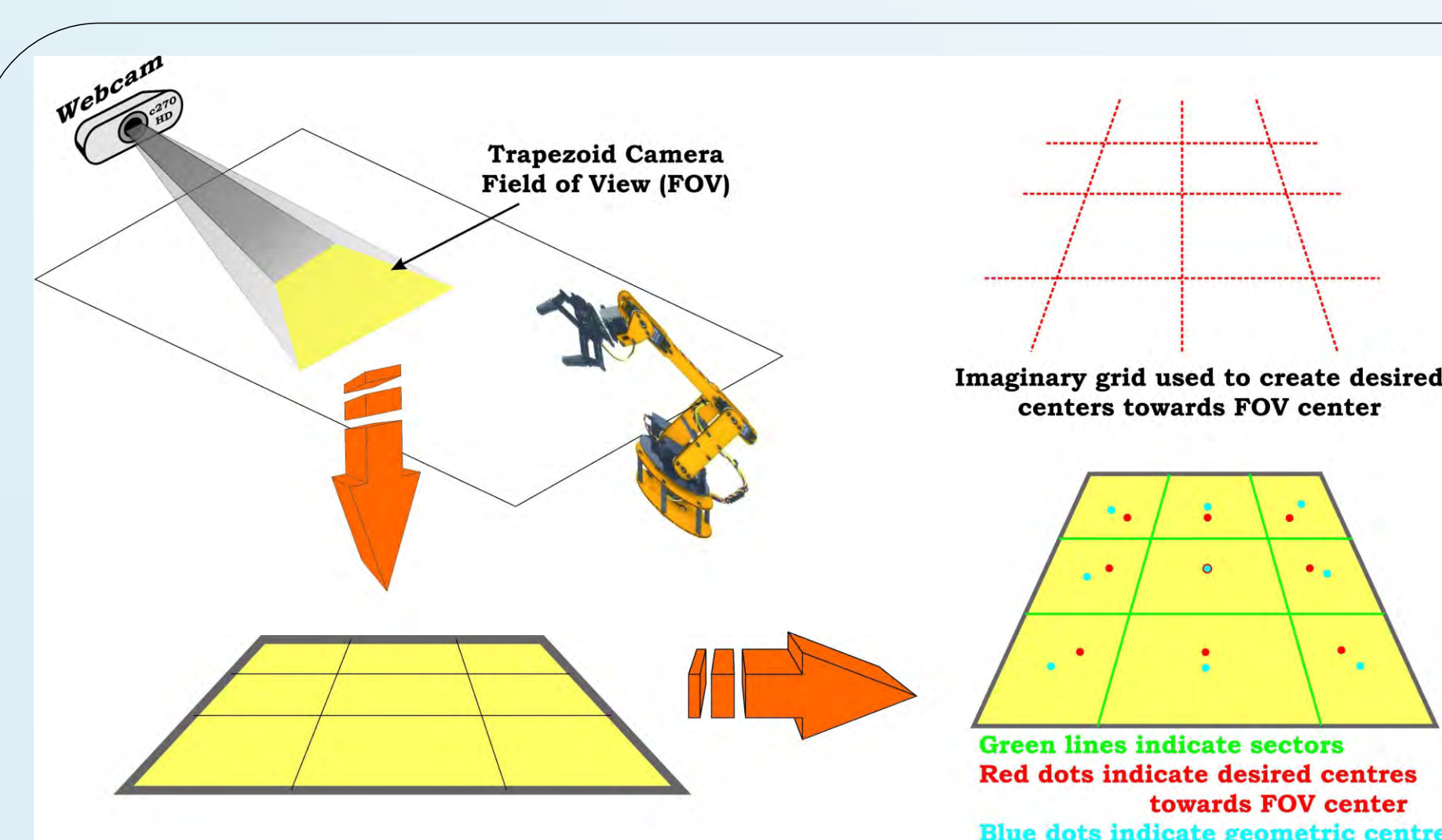
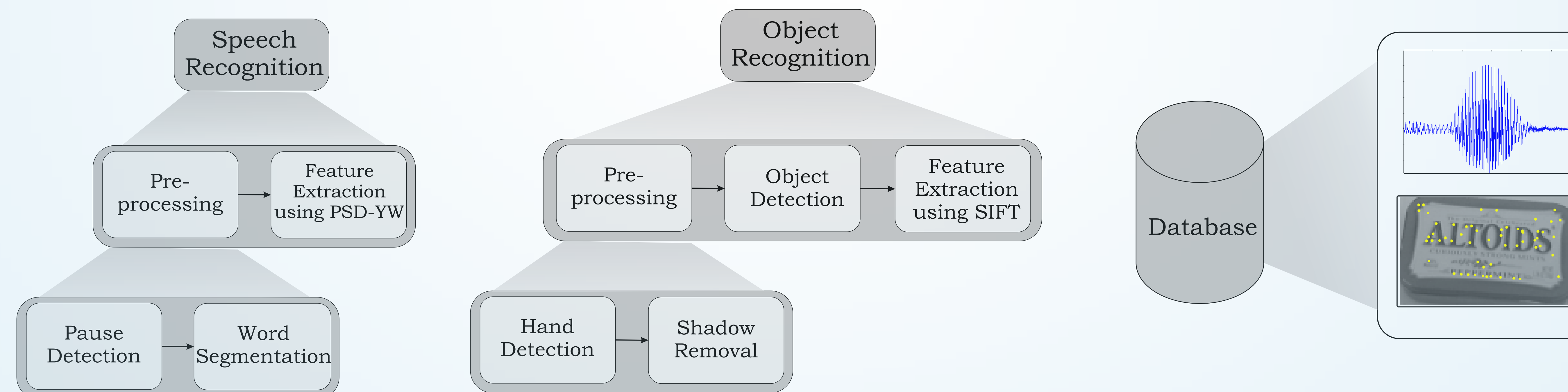


ROBOTIC ARM

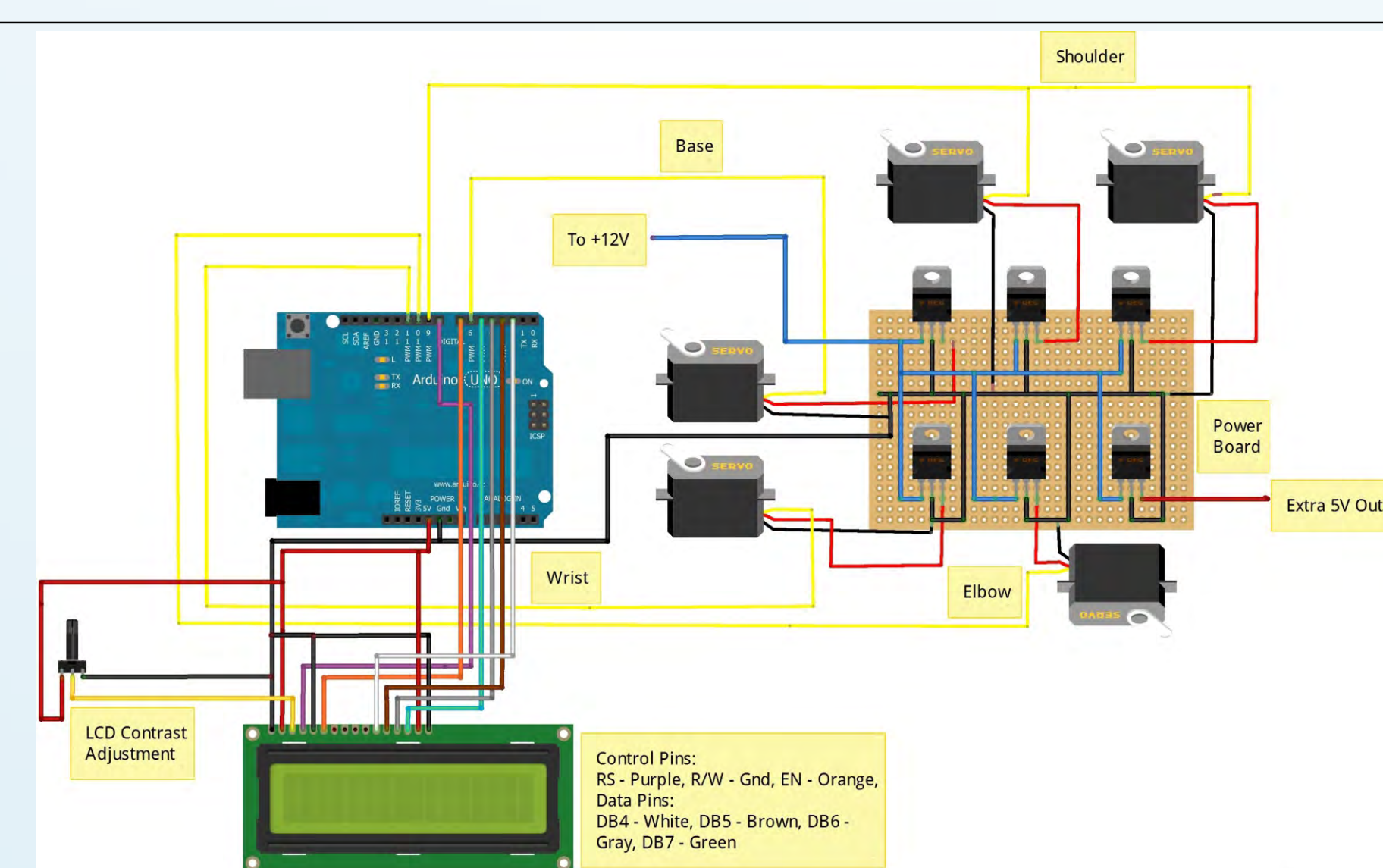


DOFs 4
of servos 5

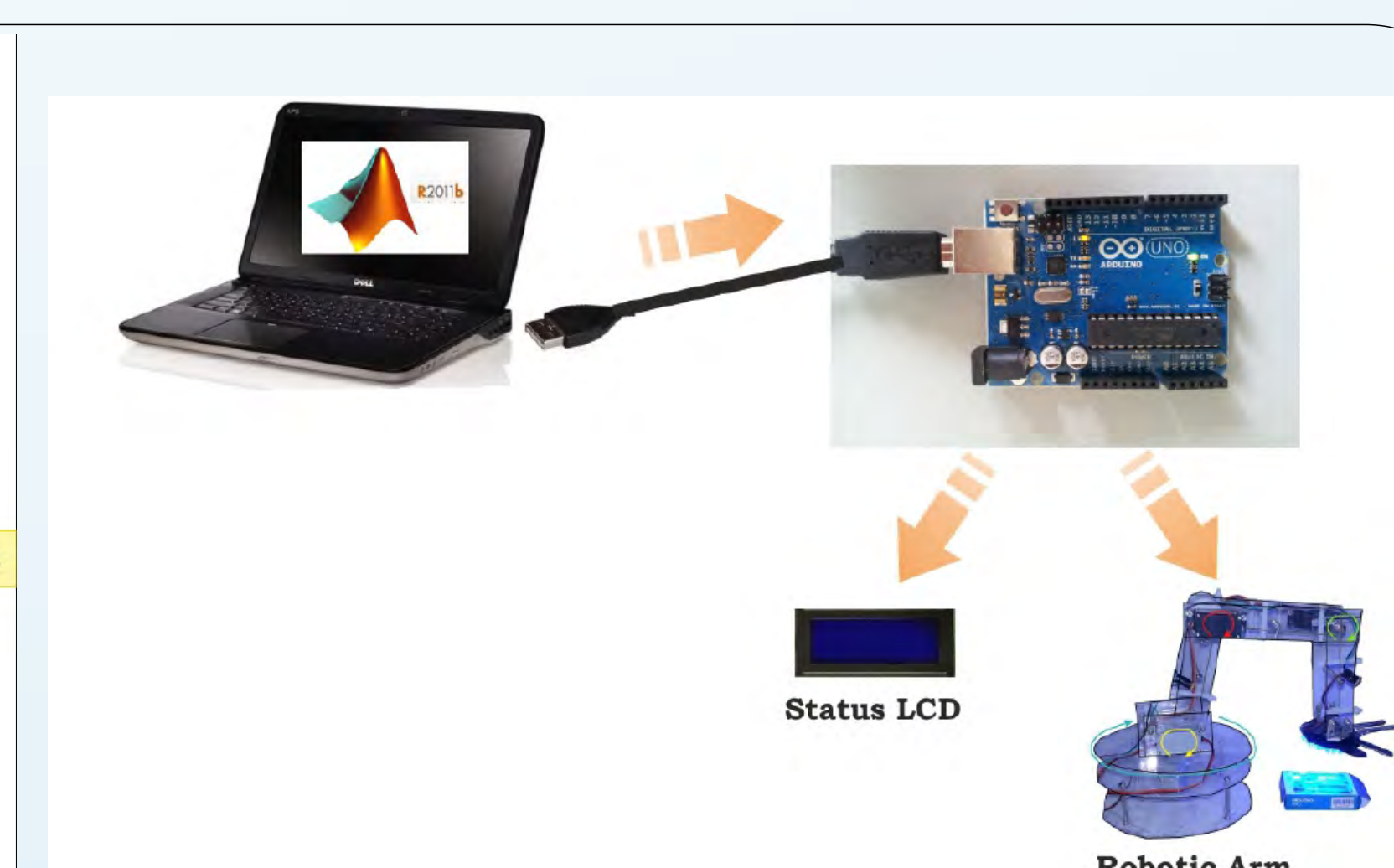
CLARA is a 4 DOF robotic arm modeled after the basic joints of a natural human arm. The various rotational movements possible are illustrated above, depicted in a color-coded fashion. A 3mm thick transparent acrylic sheet was chosen as the material owing to its low cost, high strength and low weight. These advantages were evident when evaluated against PVC pipes, wood and aluminium. To enhance the structural integrity of the arm, steel spacers were used as beams. The servos were placed on opposite sides to ensure that the center of gravity lies on the vertical axis of the arm.



What CLARA sees!



Electrical Connections in CLARA



Overall System Interface

APPLICATIONS
Industrial Applications
Cognitive Platform
Hazardous Environments
Robotic Surgery
In operation theatres
Space Exploration
Arm for an amputee

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