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Abstract

The rapid advancements in robotics and artificial intelligence have spurred the development of humanoid service robots, poised to revolutionize various sectors of society. Humanoid service robots are designed to mimic the appearance and movements of humans, enabling them to interact with people more intuitively and naturally. These robots are equipped with a wide range of sensors, and actuators, enabling them to perceive and understand their environment, learn from interactions, and perform various tasks autonomously.

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NOMENCLATURE

CAD	-	Computer Aided Design
FRP	-	Fiber Reinforced polymer
PLA	-	Polylactic acid
DOF	-	Degrees of Freedom
SG90	-	It is a small and light weight digital servomotor with high output power
MIT	-	The Massachusetts Institute of Technology (MIT)
OpenCV	-	OpenCV (Open-Source Computer Vision Library)
MS	-	Mild steel
PID	-	Proportional, integral, Derivative type.
F	-	“F” refers to the command to move forward.
R	-	“R” command to make the robot turn to right direction.
L	-	“L” command moves the robot to left .
B	-	“B” command moves the robot backwards.
S	-	The command “S” stops the robot motion.
H	-	The “H” Handshake.
N	-	The command “N” namaste (greeting) gesture.
Hi	-	Hi gesture by raising its hand.
Home	-	The “Home” command is for returning to the main home
Amp	-	(Ampere) a unit of electric current