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Mechatronic 1 Project: Beer robot

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1 Parts manufacturing method: 3D printed

1.1 Armature

arma_front_v4 and arma_rear_v4 will be 3D printed.

The front armature is made of 3 parts to take less space on the printing plate.

The holes can be made afterward using a drill.

If industrialised injection molding should be compatible.

1.2 Legs

legs_v4 must be printed (x2). Servomotors are partially mechanically locked, and screwed

2 Parts manufacturing method: lasercutted

2.1 Head

Head_v4 lasercutted part. It is a mechanical support for any heads printed by the consumer, from Hisui to Robotnik.

2.2 Wheels

wheel_3dP will be lasercutted (x2) glued with cyano or epoxy to the servomotor.

2.3 Third wheel

There is no third wheel. Lupin_the_third is a wood plate part (lasedcutted) or metallic (cut + blended) glued to the legs.

2.4 PCB and battery support

woody is a simple lasercutted part glued to the legs. An extra layer might be needed in practice to avoid collision with the armature.

2.5 Arms

arm_v4 will be lasercutted (x2).

3 Other parts

3.1 Actuator

actuator_v4 will be lasercutted (2 parts of the same thickness glued together)

3.2 Arm gearing

arm_gear_v4 will be laser cutted. The part is afterward glued on one of the 30mm gears used cyanoacrylate or epoxy resin.

3.3 Servomotor

servo_motor_parallax is the 3D model of the servomotors we buyed. No hacking needed.

3.4 Spur gears

spur_gear_30mm_cut (x2), spur_gear_40mm_normal (x1) and spur_gear_16mm_normal (x1).

Those are gears available in the commerce. One cutted on one side to be ok with our vision of the assembly. The 16mm one remains unmodified for the moment.

3.5 Arm tige

arm_tig_v4 is a 2mm diameter beam cut to a certain dimension. Maintaining it in the assembly can be either be done by gluing it or using the material friction.

3.6 Variable radius wheel

rot_var_v4 will be laser cutted. It is then glued with cyanoacrylate or epoxy resin to the 40mm spur gear.

3.7 Head tige

head_tig_v4 is a 2mm diameter beam cut to a certain dimension. Maintaining it in the assembly can be either be done by gluing it or using the material friction.