UNIVERSITY OF CAMBRIDGE
DEPARTMENT OF ENGINEERING

4TH YEAR PROJECT HAZARD ASSESSMENT FORM

Project Code: F-fi224-4	**Project Location**: Bio-inspired Robotics Lab
Student Name: Raksina Phongsermsuk	**Student Email**: rp663@cam.ac.uk
Supervisor Name: Fumiya Iida	**Supervisor Email**: fi224@cam.ac.uk

Brief Description of Project:

This project explores the design and control of a robotic manipulator that can handle biological samples for medical diagnosis. The student is expected to design and construct a robotic gripper using 3D printing technologies etc., and it will be integrated into a robotic arm for demonstration of dexterous manipulation tasks such as picking and placing of pieces of biological tissues.

Hazard identification (*the following examples are not an exhaustive list*):

Are there any hazards which are likely to be encountered during the project? **YES** ☑ **NO** ☐ **(Tick box)**

If YES then please provide further details under the headings below.

Electrical: (e.g. electric shock, equipment operating at voltages >1000v, working on exposed circuits with voltages >50v etc)

Electrical short circuits may catch on fire
Soldering could burn fingers, catch fire, produce unhealthy fumes

Hazardous Substances: (e.g. harmful, toxic, flammable, sensitiser, carcinogenic, explosive, corrosive etc)

Gases: (e.g. asphyxiant, flammable, toxic, explosive, oxidising etc)

Toxic fumes can be produced when curing polymers (i.e. silicone)

Laser: (e.g. class of laser etc)

Radiation: (e.g. ionising, non-ionising, electromagnetic fields, x-rays, ultraviolet (UV) etc)

Robotic: (e.g. errors - human/control, mechanical failures, power systems etc)

Robots could fall onto body and cause injuries such as bruising or scratching

Mechanical: (e.g. power tools, workshop machinery, powered lifting, etc)

Power tools and workshop machinery could cause injury

Biological: (e.g. biological hazards, genetically modified organisms (GMO) etc)

Incase of any use of biological substance, a separate ethical protocol will be followed

Physical: noise**,** vibration, high pressures, falling objects collapsing structures, sharp objects, high or low temperatures etc)

Long hair can get caught in robotic arms or machinery

Other: (e.g. computer use, working at height, confined spaces, lone working, manual handling, slips, trips and falls, dust etc)

Ergonomic and postural problems with desk work

Identified risks should be discussed with your supervisor and a safe system of work agreed. A more in depth risk assessment may be required after initial review. Do not proceed until this form is signed off.

For any safety queries contact the Department of Engineering, Safety Office on 01223 (3)32740 or 01223 (7)61455 or email safety-office@eng.cam.ac.uk, Room INO-18 (*Inglis Building Office Floor*).

Signature of Student:  Date: 11/10/2022

Signature of Supervisor: _____ Date: _____

Signature of Safety Office: _____ Date: _____