**ROBOT APPLICATION:** Robot brick-layer

**DESCRIPTION:** The robot will be laying building bricks, one by one, to build houses’ walls. For that it will displace around the future house surface and use the robotic arm.

**TASKS BREAKDOWN:**

1. Choosing commercial robot model
   1. Getting CAD model
   2. Mechanical integration of robot arm and wheel base into one unit ( if commercial robot is not found)
   3. Importing Matlab/Simscape/Simulink template model
   4. Study robot specifications (max. payload, arm range,…)
2. Articulated arm control.
   1. Set parameters (some might not be defined)
   2. Finding inverse equations
   3. Programming trajectory
   4. Choose where to use sensors and PID controllers
3. Wheeled-base navigation and control.
   1. Set parameters (some might not be defined)
   2. Programming path (Guide following?)
   3. Choose where to use sensors and PID controllers
   4. Make sure not to collide with the building wall
   5. Decide how to carry bricks
4. Articulated arm and wheeled-base application integration.
   1. Choose simulation scenario (brick size, wall height…)
   2. Decide how to build the wall 🡪 brick sequence
   3. Coordinate wheeled-base and articulated arm movements.
   4. Implementing GUI (\*)
   5. Implement security protocols
   6. Power control (\*)
5. Hardware implementation and validation

**QUESTIONS:**

* How should we break up the tasks? Is it expected for us to work on several main tasks at the same time or can we organise them in a chronological order?
* Are we supposed to use a battery powered robot? If so, what does it imply? Can we suggest other way of getting power?
* Should we use camera and other sensors or make the robot work blindly (trajectories completely programmed)?