**ME 420 – MECHANICAL ENGINEERING RESEARCH PROJECT**

Registration number : E/17/285

Project Title : Optimizing Cubic Swarm Robot Mechanisms for Efficient Coordination and Task Execution

Outcomes of the project: 1. Find the best mechanism to Cubic Swarm Robot

2. Enhanced Swarm Coordination

3. Find the best applications where it can apply cubic swarm robots

Milestones of the project :

**Project timeline tagged with the milestones:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Project timeline** | Jul 31 - Aug 6 | Aug 7 - Aug 13 | Aug 14 – Aug 20 | Aug 21 – Aug 27 | Aug 28 – Sept 3 | Sept 4 – Sept 10 | Sept 11 – Sept 17 | Sept 18 – Sept 24 | Sept 25 – Oct 1 | Oct 2 – Oct 8 | Oct 9 – Oct 15 | Oct 16 – Oct 22 | Oct 23 – Oct 29 | Oct 30 – Nov 5 | Nov 6 – Nov 12 | Nov 13 – Nov 19 |
| **Literature review regarding best mechanism for cubic swarm robots** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Design the most suitable mechanism for that robot** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Finalize the designing part of the robot and build prototype** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Test the prototype and take the important data** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Develop mathematical model to control that robot using above collected data** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **Finalize the design and best suitable mathematical model for cubic swarm robot** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | Jul 31 - Aug 6 | Aug 7 - Aug 13 | Aug 14 – Aug 20 | Aug 21 – Aug 27 | Aug 28 – Sept 3 | Sept 4 – Sept 10 | Sept 11 – Sept 17 | Sept 18 – Sept 24 | Sept 25 – Oct 1 | Oct 2 – Oct 8 | Oct 9 – Oct 15 | Oct 16 – Oct 22 | Oct 23 – Oct 29 | Oct 30 – Nov 5 | Nov 6 – Nov 12 | Nov 13 – Nov 19 |

Date :2023/09/15

Name of the Student – RATHNAYAKA R.M.A.K. Signature of the student : A close-up of a signature on a piece of paper

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Name of the supervisor -Prof. D.A.A.C. RATNAWEERA Signature…………………………………………………………

Name of the CO. Supervisor -Dr.ISURU NAWINNA Signature…………………………………………………………