A logo with text and numbers

Description automatically generated with medium confidence

Interdisciplinary Molecular Communication & Sensing (IMCS) Research Group

Progress Report I

January 2024 – September 2024

**Group Details**

|  |  |
| --- | --- |
| Title(s) of the Projects Conducted | * Prototyping Platform for Molecular Communications (MC) Research * Towards Plant-to-Plant Communication via Molecular Signals |
| Principle Investigator | Dr. Asanka P. Sayakkara |
| Co-Investigators | * Mr. Kenneth Thilakarathna * Dr. Randil Pushpananda * Dr. Lasanthi De Silva * Dr. Kasun Karunanayake * Dr. Chamath Keppitiyagama * Dr. Chaminda Ranasinghe |
| Research Assistant | Ms. S. A. V. S. Piyathilake |
| Other Members | * Oshani E. Wickramasinghe * Vishmina Obeysekara * Gayathri Purage |
| Reporting Period | 01.01.2024 – 30.09.2024 |
| Outcomes/ Deliverables | * Initial implementation of a cost-effective research platform for the exploration of MC * Conference Paper * Title of Paper: A Low-Cost, Off-the-Shelf Prototyping Platform for Molecular Communications Research * Title of Conference: 17th International Conference on Signal Processing and Communication Systems (<https://icspcs2024.io.pbs.edu.pl/>) |

Table of Contents

1. Prototyping Platform for Molecular Communications (MC) Research1
   1. Literature Review2
   2. Implementation of the MC Research Platform2

Selection of Sensors3

Individual Sensor Testing3

Implementation of the Overall System3

* 1. Experimentation & Testing2

1. Towards Plant-to-Plant Communication via Molecular Signals4
   1. Literature Review2
   2. Experimentation & Testing2
2. Prototyping Platform for Molecular Communications (MC) Research
   1. Literature Review

Initially, the literature in the domain of molecular communication was reviewed by all team members. The goal was to identify unexplored areas, assess what had already been accomplished, and study various related topics as outlined below.

* Overviews and Tutorials
* Special Issues
* Modeling of Transceiver and Propagation Biophysics
* Performance Evaluation, Resource Management, and Parameter Estimation
* Simulation, Experiments, and Testbeds
* Standardization and Emerging Applications
* Books