**DROPLETS documentation**

**-Kedar More**

**Online resources:**

1. <https://github.com/correlllab/cu-droplet>

This is the code used to program the droplets.

**What can droplets do?**

1. Communicate with other droplets via Bluetooth.
2. Emit LED light with varying colors and intensity.
3. Senses incident light and give RGB output.
4. Move in 6 linear directions and 2 circular directions.

direction 0: 12 o'clock (forward)

direction 1: 2 o'clock

direction 2: 4 o'clock

direction 3: 6 o'clock (backward)

direction 4: 8 o'clock

direction 5: 10 o'clock

direction 6: clockwise

direction 7: 10 counterclockwise

1. Can count the number of steps taken or the distance travelled (not accurate).
2. IR distance sensing in 6 directions. (different from motion)

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/DIR5 DIR0 \

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| DIR4 DIR1 |

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\DIR3 DIR2/

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**Important functionalities needed for the research:**

1. Dung Beetles (only 1 droplet needed):
2. Linear motion (which is not accurate)
3. Circular motion (to align itself)
4. Light sensing (to check the path)

Notes: To take feedback to check the actual the motion traveled we can use OpenCV (a python library for vision).

1. Bees (as many droplets as possible)
2. Random motion (with some randomness factor)
3. IR sensing (to check collisions and change direction)
4. Light emission (if we need to differentiate the droplets)

Notes: OpenCV for feedback.