Master Slave Robots

CONCEPT OF MASTER SLAVE ROBOTS:

Master-slave robotics is a model of communication where one robot has unidirectional control over one or more other robots.

IDEA OF THE PROJECT:

A command is given to master robot, and it is copied by the slave robot.

COMPONENTS REQUIRED:

1. Node MCU
2. L293D I.C.
3. Chassis
4. DC Motors
5. Wheels
6. Caster wheel
7. Jumper wires
8. Batteries

Explanation:

- Master robot can send and receive the command via cloud database.
- The slave robot will only be able to receive commands from the database and hence it performs the task same as the master bot

Basic of a master slave communication type swarm robot:

The swarm robotics navigation and behavior control are majorly inspired by biological axis of ants, bees and even humans . This has its advantages in flexibility, robustness, scalability over a single robot path planning.
To establish a communication among swarm of robots we have used node MCU. With the help of node MCU module each slave robot can perform different task assigned to them after getting command from master robot , this master robot will get the instruction from the user input from which robot which is located at one point will move as per the input provided.
The centralization in robotics mean that robotic system or community where any one of them will be responsible for the work done by whole swarm which is cited to be leader robot, while other robots (follower) take its command from leader and acts accordingly.
Once the master robot receives the command, it will just transmit that command to corresponding slave robot. Node MCU communication among the master, and the slave robots is possible only if the PAN ID (Personal Area Network Identification) is same for the master and the slave robots. Each slave robots has their own network address. Eg: If the destination address in the master robot matches the network address of slave-3 robot, this indicates that there is a successful communication between the master robot and the slave-3 robot.

If one of the master robot fails means we can communicate through other master robot. Once the communication between master and slave robot is proper, then each slave robot will perform their task assigned to them. Once the task is completed by slave robot , it will send the status of the task to master robot which is located at the destination.

Reference:

http://ijarece.org/wp-content/uploads/2017/03/IJARECE-VOL-6-ISSUE-3-183-187.pdf

https://pdfs.semanticscholar.org/953c/086ed4413af4f9c9921cf43e0019735b1bc5.pdf

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