

## Investigating Power Management in a Robot Colony

### Explanation of Miscellaneous Budget Category

The Miscellaneous category encompasses the various expenses that would be required for prototyping different charging station designs and constructing charging stations after a design has been settled on. Necessary electrical components include various IC's, passive electrical components (IE: Resistors, Capacitors, etc.), fuses, LEDs, wires, and cables. These components are used for connecting the power supply to the charging station, regulating power supply current to the robot, and building homing and localization sensors. Various materials are needed for the construction of the physical charging station apparatus. Such materials include metal strips, wood, and plastics for contacts, connectors, frames, and supports. Screws, adhesives, and standoffs would also be required for attaching the different components of the charging station together. Finally, we would need breadboards for testing the circuitry and PCBs for the final version of the charging station.

We are planning on prototyping several different charging station designs. Due to the nature of the design process, it is difficult to estimate costs since they are dependent upon specific prototype designs and how the prototypes fare during trials. We originally did not include specific prices for the miscellaneous category for this reason. However, we have compiled an estimation of what we would allocate funds towards.

<b>Part</b>	<b>Unit Cost</b>	<b>Quantity</b>	<b>Sub Total</b>
Microcontrollers	\$15	5	\$75
ICs	\$5	10	\$50
Passive Electrical Components, Fuses, LEDs	\$50	1	\$50
PVC/Metal/Wood	\$75	1	\$75
Screws/Adhesives	\$25	1	\$25
Connectors/Contacts/Supports	\$25	1	\$25
		<b>Total:</b>	<b>\$300</b>