

# Dog Trainer Project Proposal

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## 1 Overview

The fastest way to tire out a dog is through mental exercise, as dogs are not build for thinking. In an attempt to tire out Anshuman's pug Hash, our project will challenge Hash's pattern recognition. We intend to have 5 LED buttons, which will light up in various patterns. If Hash can press the buttons in the correct order, a motor attached to a box with treats will dispense some as a reward. An on board display will track his progress, including how many times he is successfully able to follow the pattern. The game can be enabled or disabled remotely through a Bluetooth module.

## 2 Peripherals

1. Red, Green, Orange, Blue, White LED buttons
2. DC motor
3. Bluetooth module
4. OLED display

## 3 Serial Interface Protocols

UART - Bluetooth module

I2C - OLED display

## 4 Responsibilities

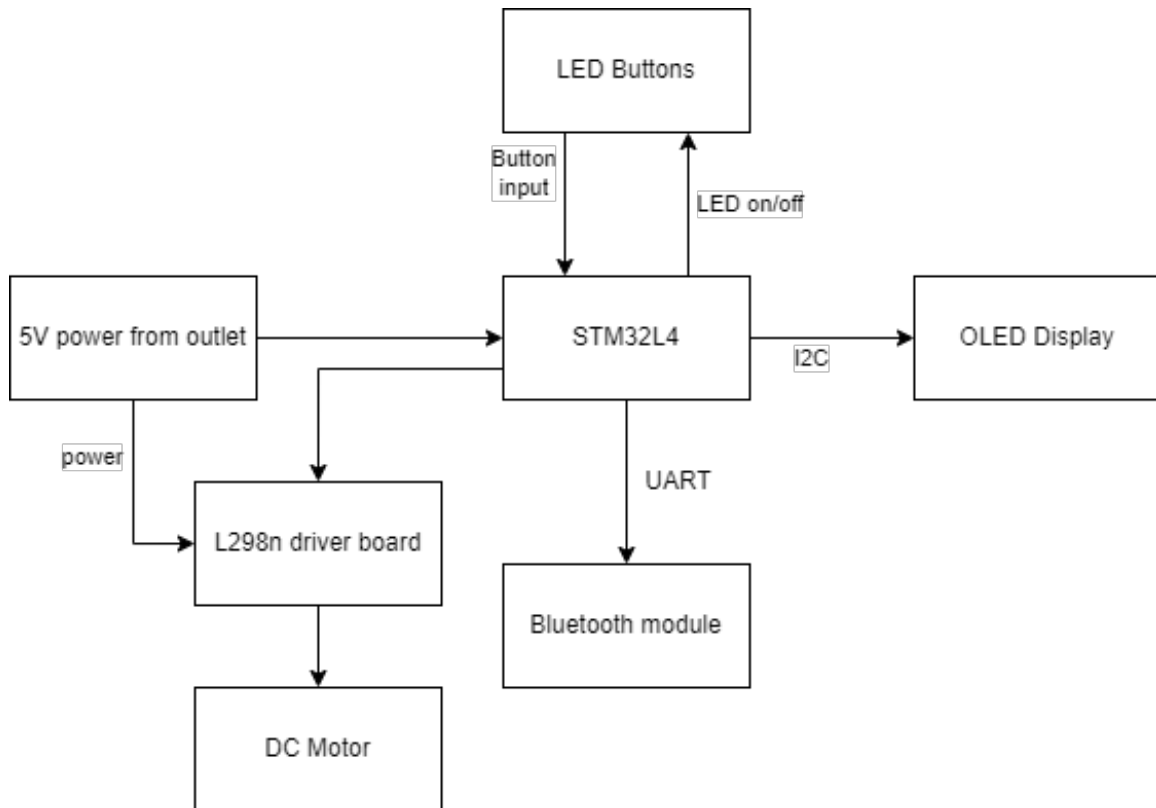
Reiley will work on:

- Bluetooth module interface and interrupt
- Display tracking and I2C interface
- Interrupt handlers for global flags

Anshuman will work on:

- Help with building physical prototype
- Work on dispenser for treats
- Handle LED button logic

## 5 Block Diagram



## 6 Software

1. Wait until enabled flag is on
2. Update display statistics
3. Generate a sequence of buttons in some order, with no repeats
4. Flash the buttons one at a time
5. If interrupt from button pressed, check if that is the next unpressed button in sequence
6. If all buttons have been pressed, send signal to L298n for a limited amount of time and go to step 1
7. If wrong button pressed, flash all lights then go to step 1
8. If Bluetooth sends value, set enabled flag to value

## 7 Website

[hash.biggergig.com](http://hash.biggergig.com)