youReader

Mahan Das

Background

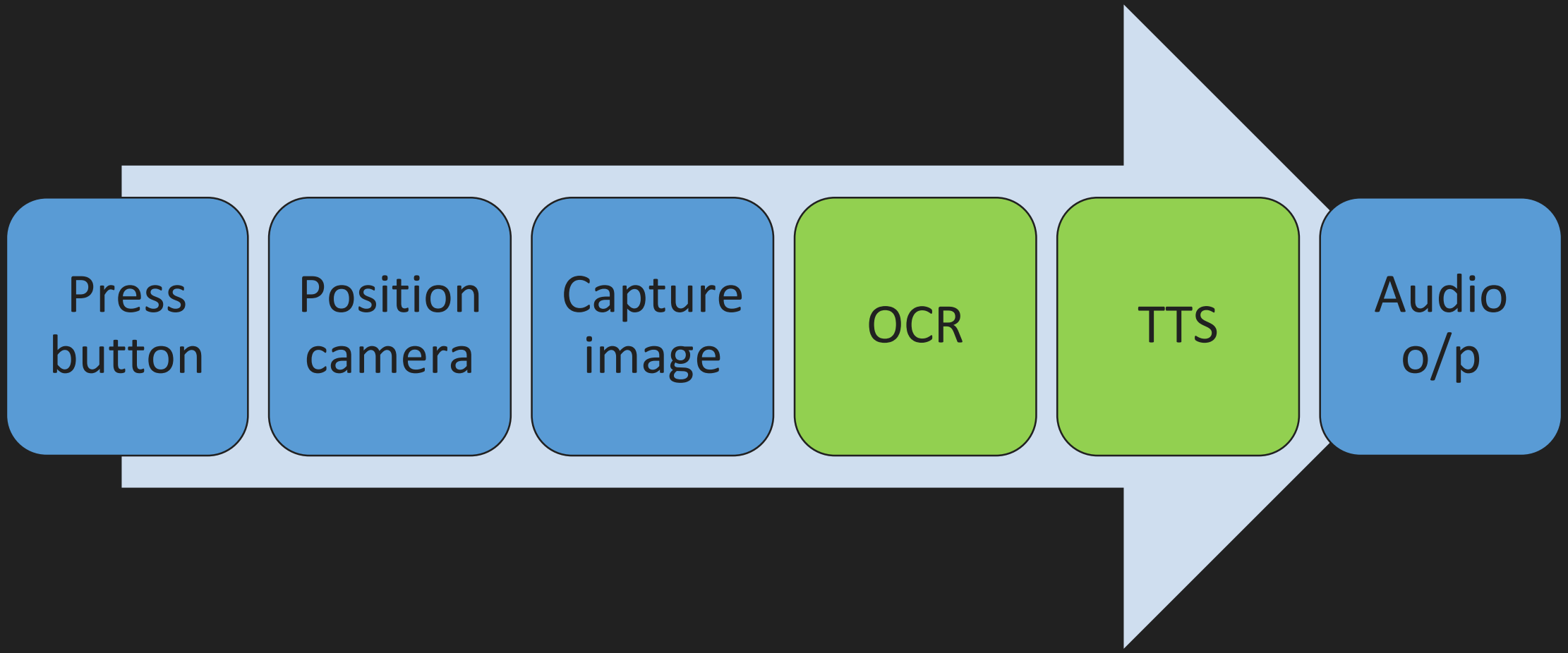
1. The project focusses on providing a *solution for blind people to read* normal books without having to buy an audiobook. Especially, for listening to newspapers.

2. *The idea* uses text synthesis (text to speech) for converting images with text to speech format. It combines several active yet less used software's into one *cost effective and convenient* controller.

3. The device also has a scope to be *embedded into wearable devices* (e.g.Google glass, I watch, etc.) for speech synthesis (speech to text) for searching, which is an area of expansion.

4. *Easy way to operate* will allow both blind and otherwise to *use it with ease.*

Process Overview



Hardware :

✓Raspberry pi 2 (model b)

✓Ftdi breakout board

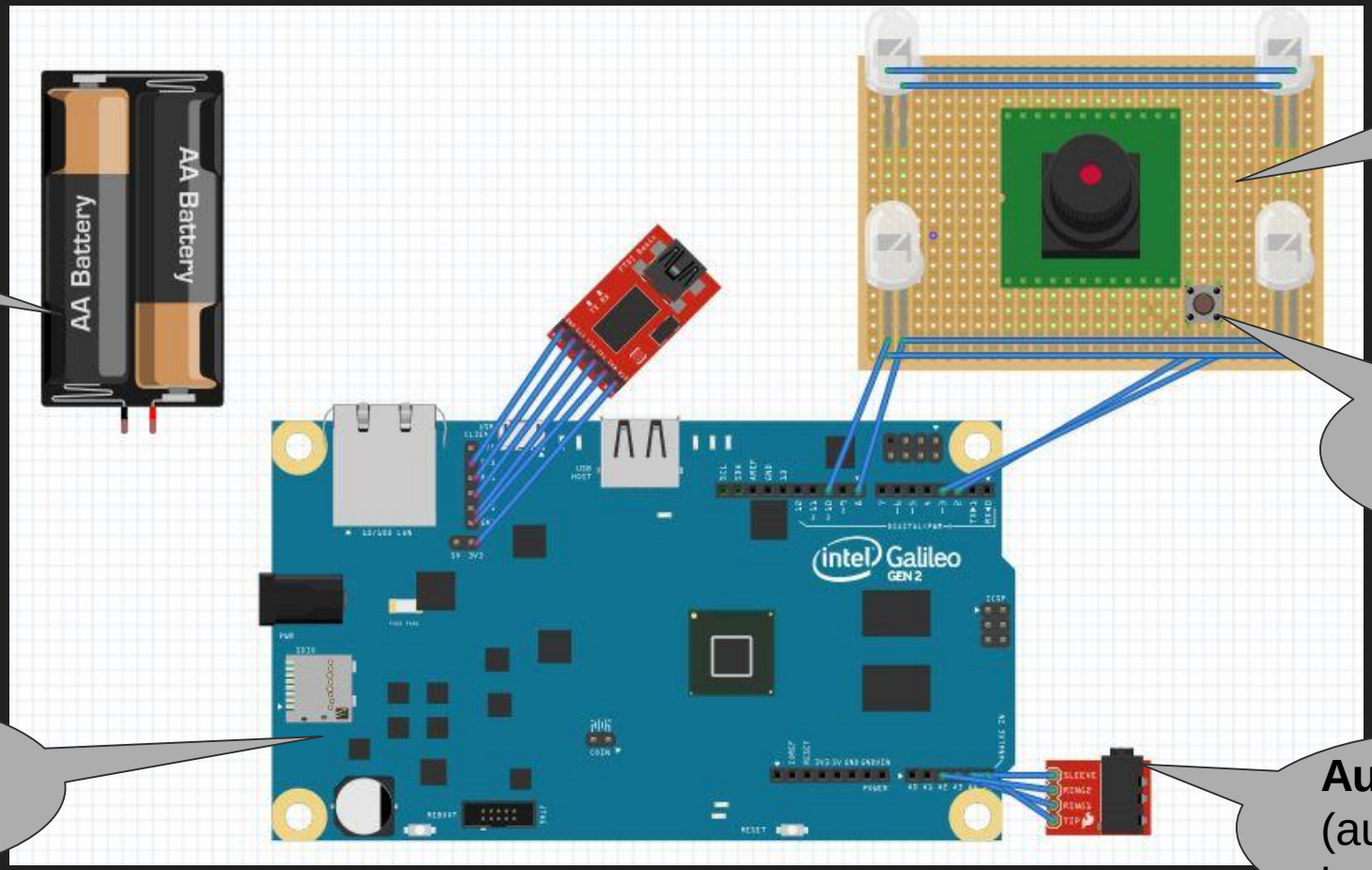
✓Logitech uvc webcam

✓Memory card

✓Audio jack breakout

✓Button

Design



Power Source

Camera + LED lights

Button : (To start the process)

Controller (Raspberry Pi 2 used currently)

Audio jack (audio out to headsets)

Software

✓Open CV

✓Yocto Linux/debian

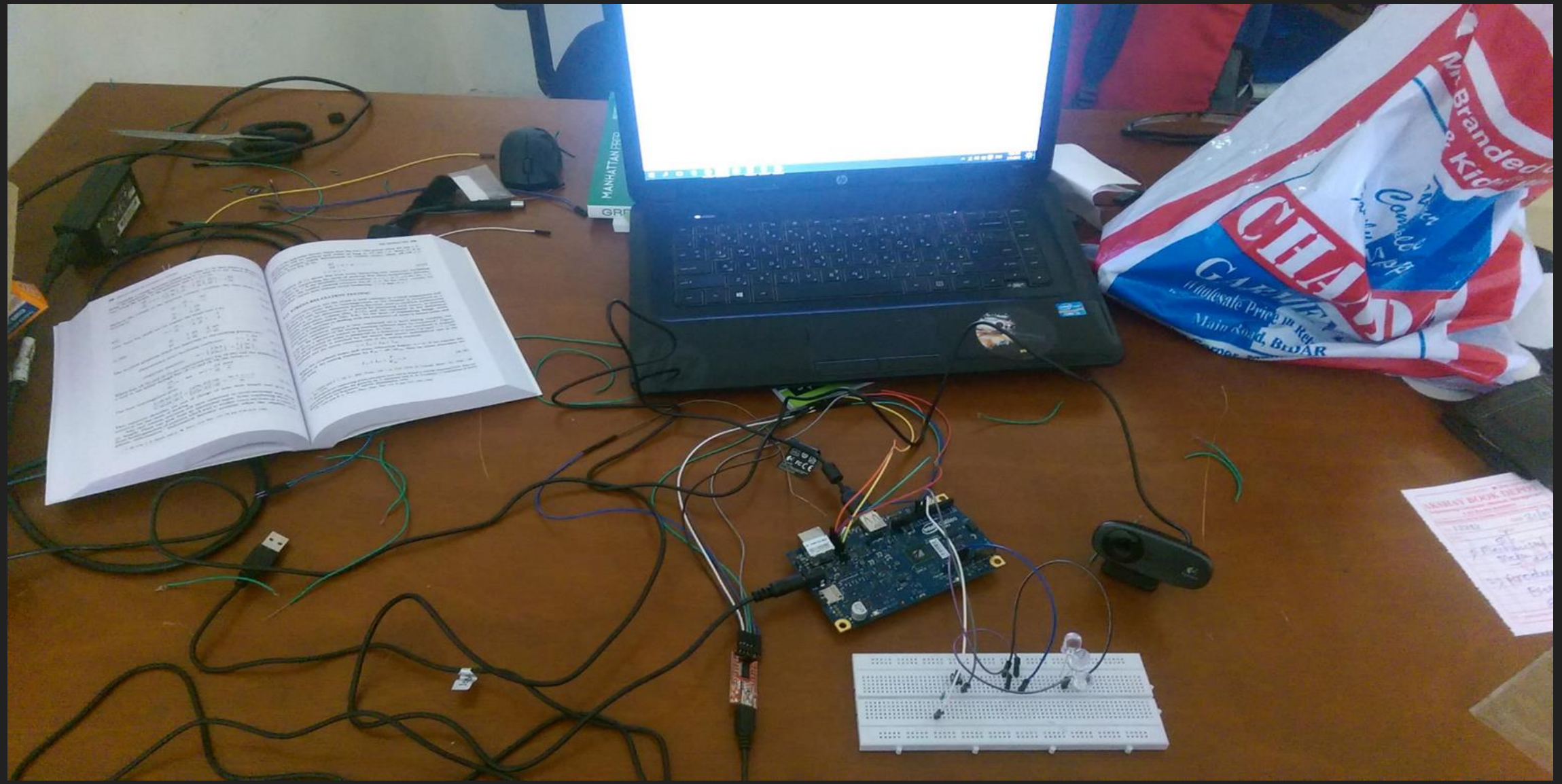
✓Tessaract OCR

>googles open source engine
>optical character recognition

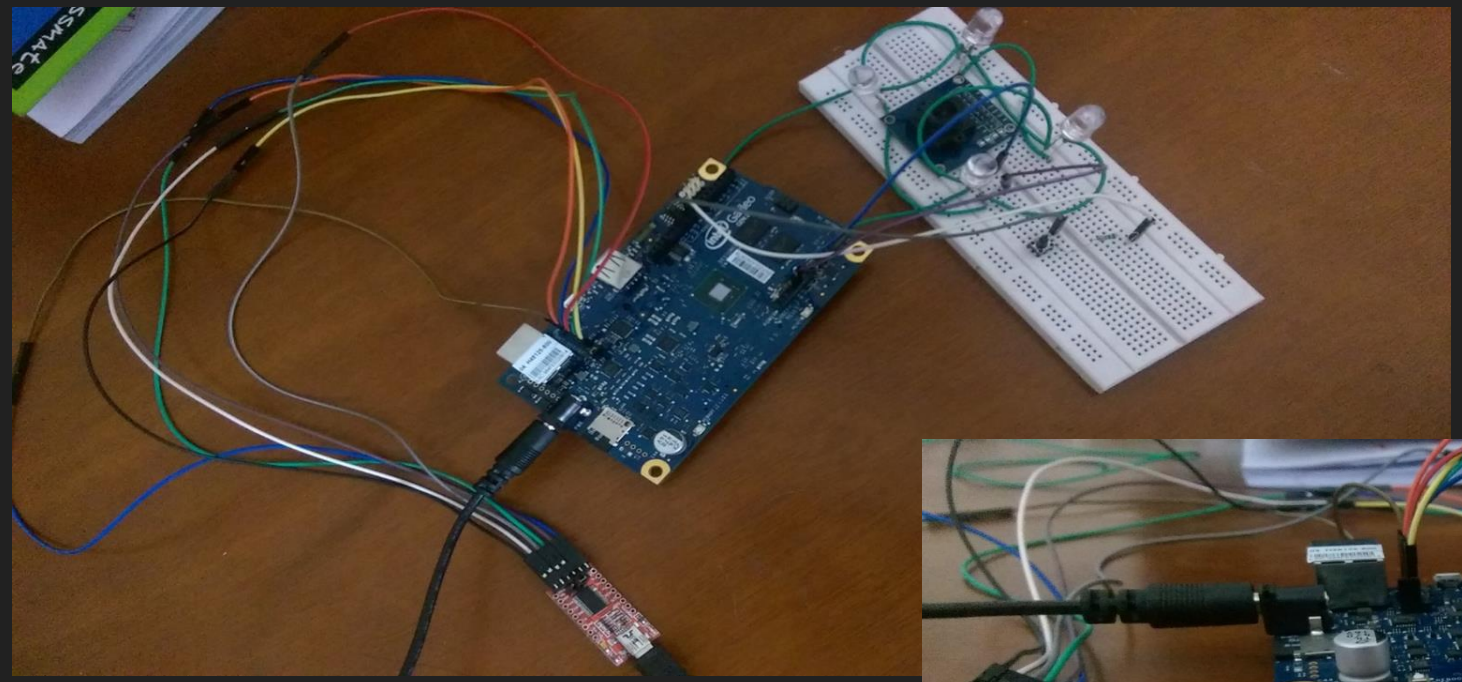
✓Espeak TTS

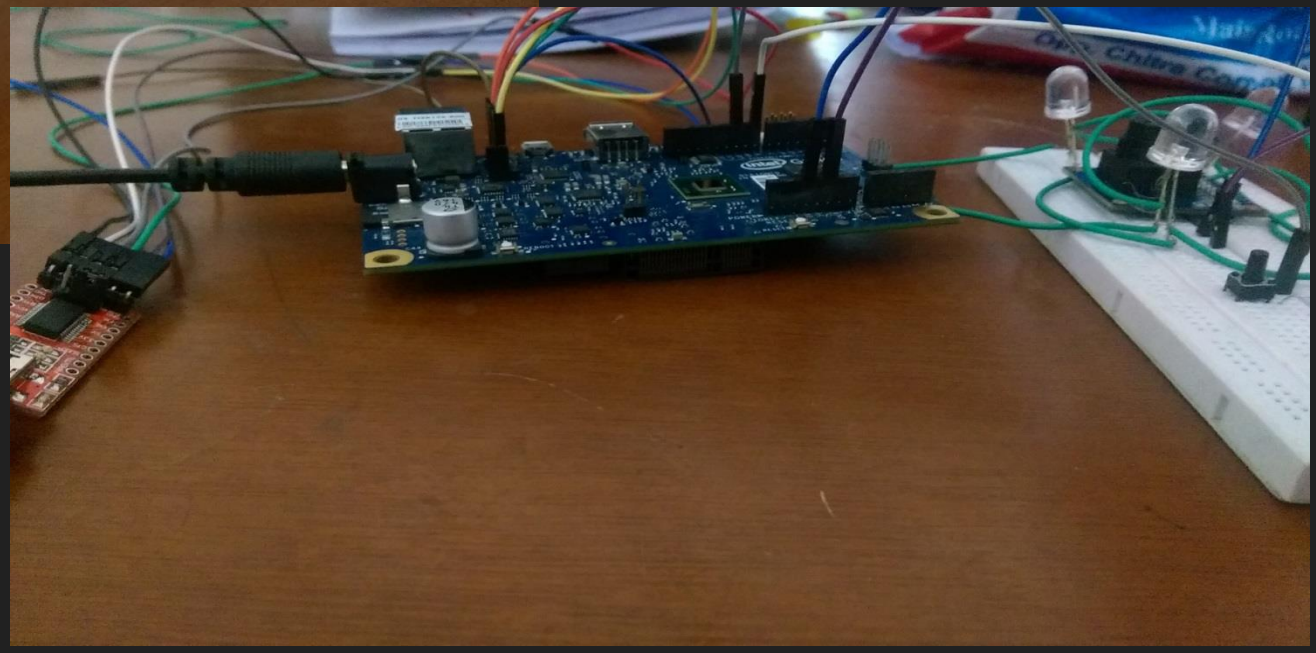
>text to speech

Project setup

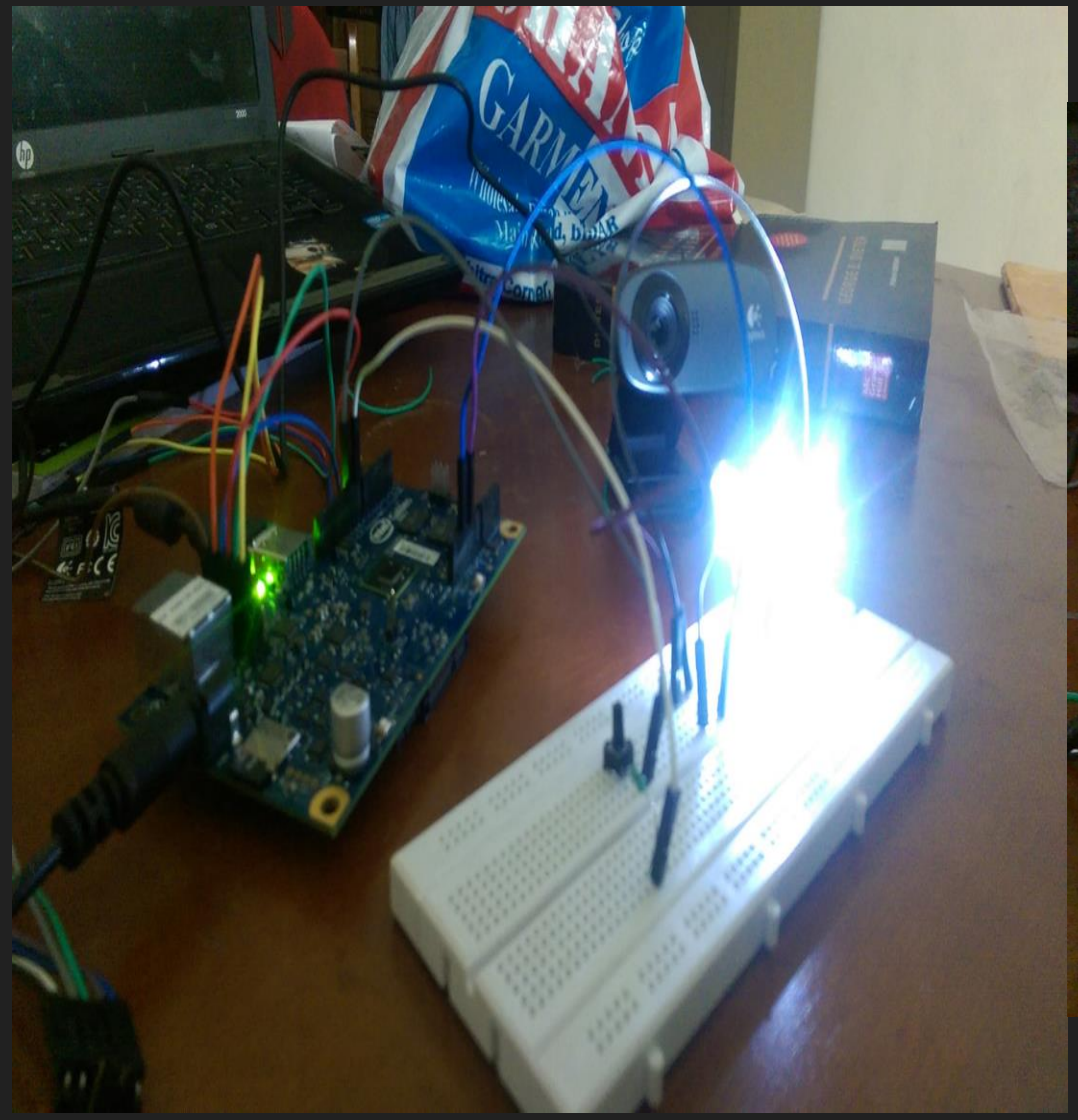


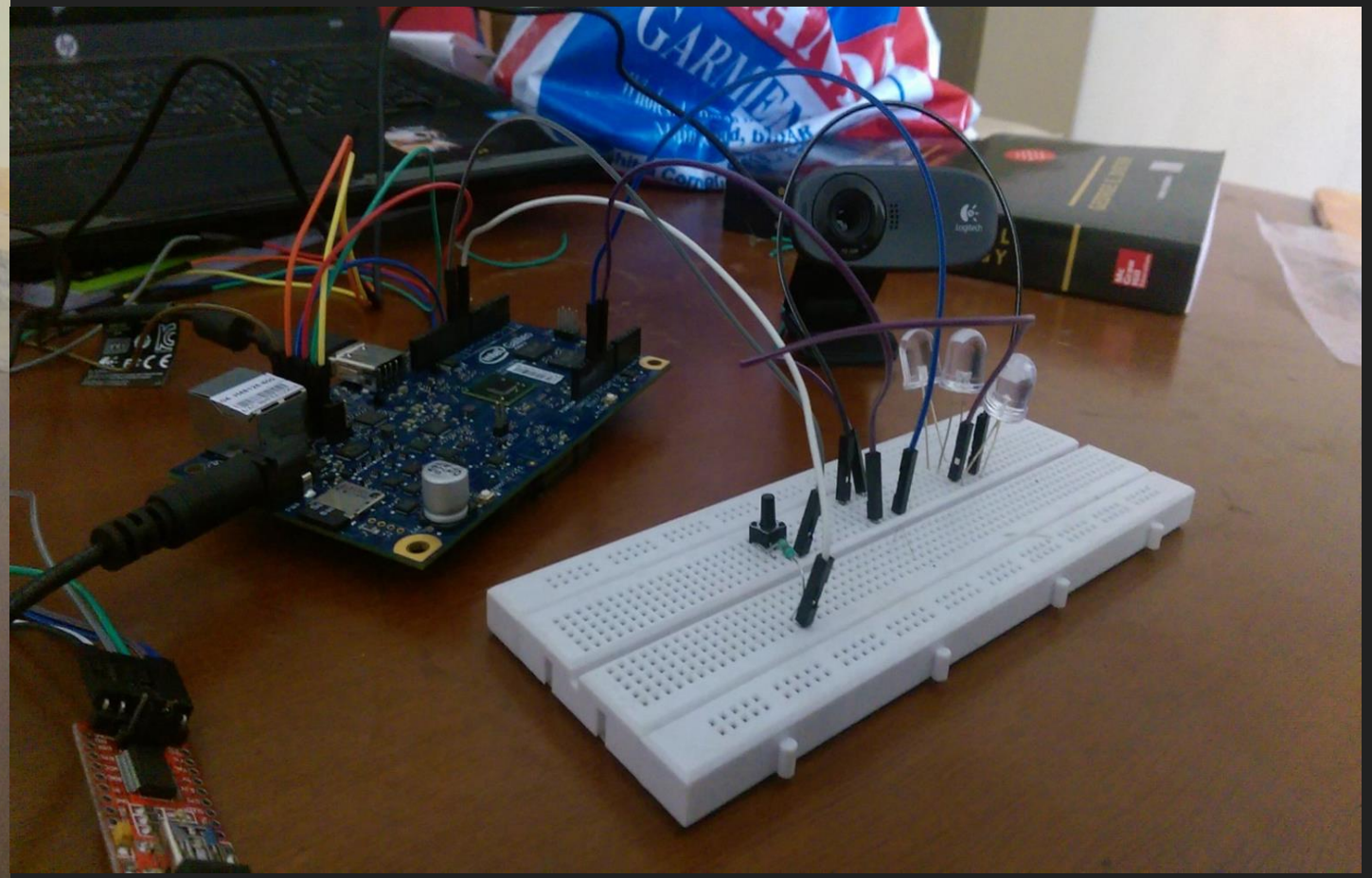
Testing phase I



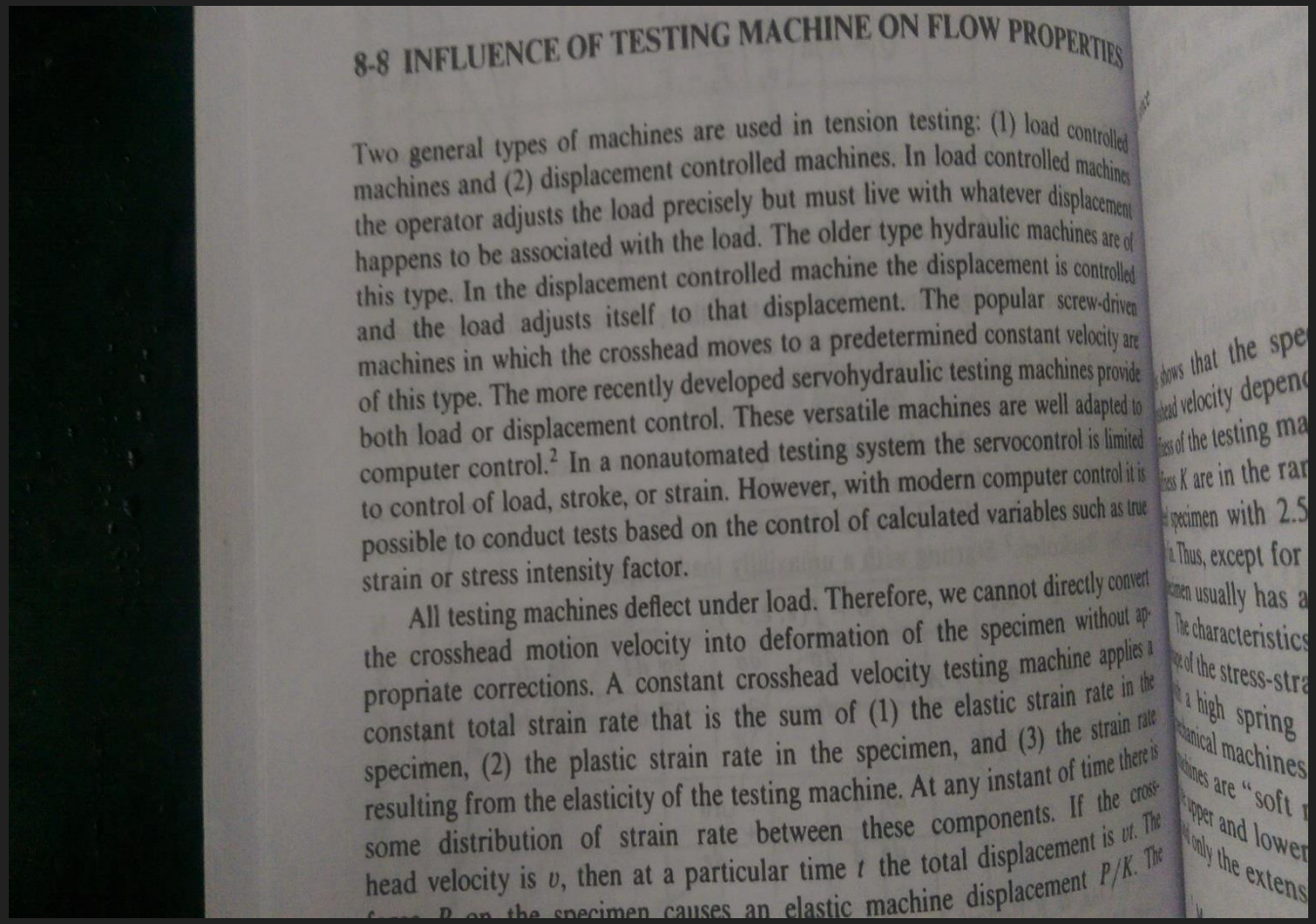


Testing Phase II





OCR using tesseract (mechanical metallurgy *taken from college library*)



8-8 INFLUENCE OF TESTING MACHINE ON FLOW PROPERTIES

Two general types of machines are used in tension testing: (1) load controlled machines and (2) displacement controlled machines. In load controlled machines the operator adjusts the load precisely but must live with whatever displacement happens to be associated with the load. The older type hydraulic machines are of this type. In the displacement controlled machine the displacement is controlled and the load adjusts itself to that displacement. The popular screw-driven machines in which the crosshead moves to a predetermined constant velocity are of this type. The more recently developed servohydraulic testing machines provide both load or displacement control. These versatile machines are well adapted to computer control.[2] In a nonautomated testing system the servocontrol is limited to control of load, stroke, or strain. However, with modern computer control it is possible to conduct tests based on the control of calculated variables such as true strain or stress intensity factor.

All testing machines deflect under load. Therefore, we cannot directly convert the crosshead motion velocity into deformation of the specimen without appropriate corrections. A constant crosshead velocity testing machine applies a constant total strain rate that is the sum of (1) the elastic strain rate in the specimen, (2) the plastic strain rate in the specimen, and (3) the strain rate resulting from the elasticity of the testing machine. At any instant of time there is some distribution of strain rate between these components. If the crosshead velocity is v, then at a particular time t the total displacement is vt. The force P on the specimen causes an elastic machine displacement P/K. The

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Pricing

- Raspberry pi mod 2 – 2799/-
- Button & wires – 100/-
- Logitech webcam – 1100/-
- Velcro and misc – 100/-
- Powerbank – 400/-
- USB Audio out – 700/-
- Memory card – 300/-

total : 5500/-

Pros

- Portable setup
- Low power consumption
- Easy to use
- Wearable
- Can also be used to send the text/audio file to cloud (IOT)
- Cost effective (large scale manufacturing)

Limitations

- Smaller font size and lighting conditions
- Background noise (above threshold)
- Dark room conditions
- Moving body images cannot be detected properly
- language limitation (Indian local languages)

Future scope

- Autofocus
- Rectangular page detection algorithm incorporation
- Inverted page detection
- Adding a pause/play/reverse facility
- Search option via STT
- Adding languages

Thank You