Taxi Meter

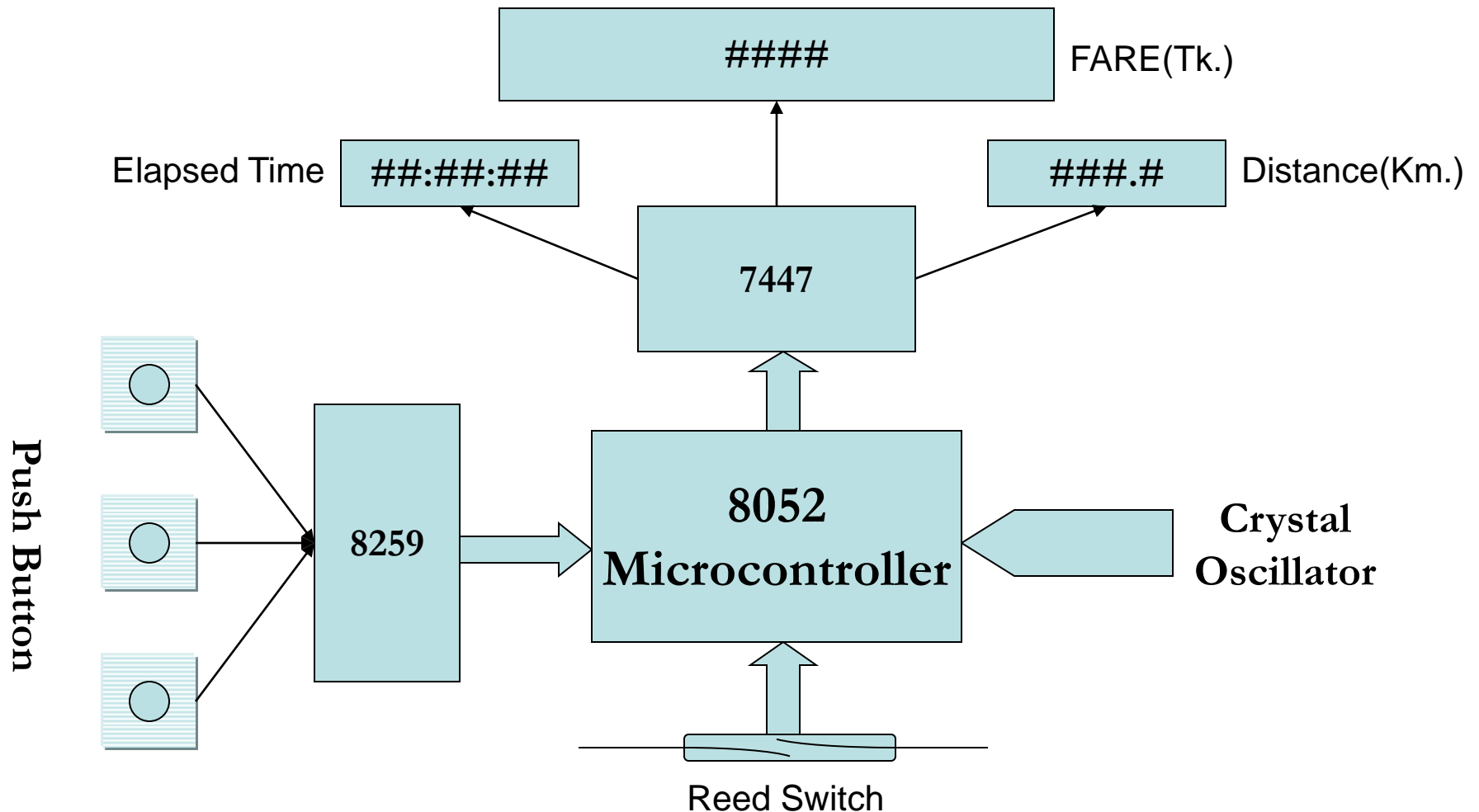## Group #2

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2/2/2010

Overview

- Taxi Meter is used to calculate the fare based on traveled distance and elapsed time.

- Fare is calculated by multiplying the traveled distance by fare rate if the velocity of the taxi is above a threshold velocity. If the velocity of the taxi meter is below a predefined threshold, then fare is calculated at a different rate based on the elapsed interval.

Block Diagram

| #### | FARE(Tk.) |

Elapsed Time   ##:##:##   ###.#   Distance(Km.)

7447

Push Button

8259

8052 Microcontroller

Crystal Oscillator

Reed Switch

Rotation Detector

Previous Implementation Drawbacks

- The previous implementation was done using pc. This is not a real world solution for a taxi meter.

- A microcontroller was used just for measuring time.

Improvement

- Our implementation will be done in microcontroller. No PC needed on each TAXI !!!

- No external code memory will be required.

- The clock in the microcontroller is used for measuring the real time.

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Challenges

- Design Challenges
  - The real world commercial taxi meters use optical sensors or Hall effect sensors for rotation detection, which is not available to us. So, we are using the reed switch technique.
  - The reed switches available in the market has no labels on it, so we can't find out it's datasheet to gather its electrical ratings.
  - The reed switch will wear out within a short time span.
- Implementation Challenges
  - Since microcontroller programmer is costly, we have to lend it from the lab to program the microcontroller. It puts a implementation constraint on us.

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Future Improvement Scopes

- LCD displays may be used instead of 7 – segment displays.

- Rotation detection part can be improved by using the real world solution. This can be easily integrated with our proposed taxi meter.

- Fare history can be stored in the taxi meter, so that the owner can check it.

- A real world taxi meter must run on a battery. Our proposed meter used the line power through an adapter.